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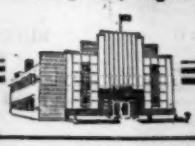

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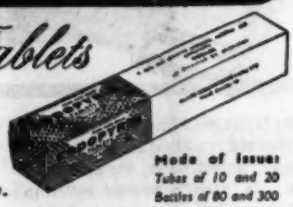

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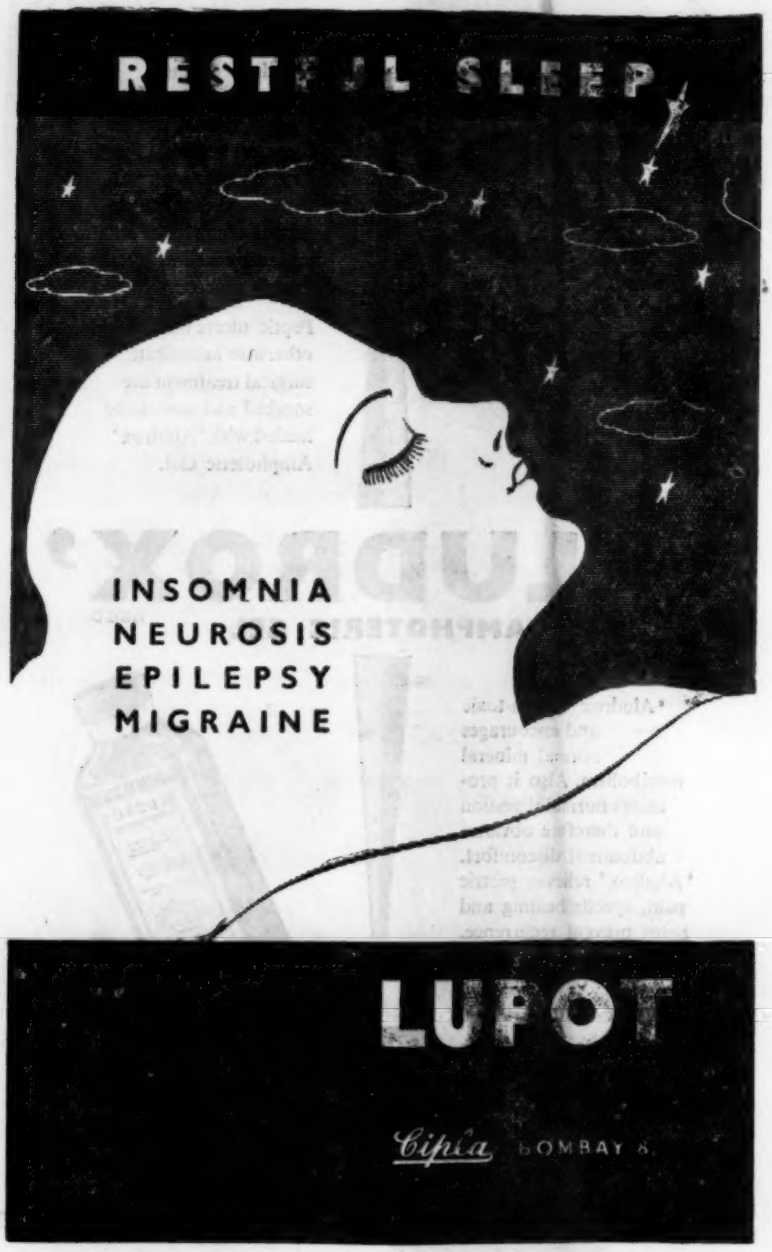

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† Craig, J., Clark, N.S., and Clemens, J.D. (1949) Brit. med. J., 1, 6
Herxheimer, H. (1948) Lancet, 1, 667
Hunter, R. B., and Dunlop, D. M. (1949) Quart. J. Med., 17, 271
McEvedy, M.B. (1949) Lancet, 1, 825
Reid, T.J., and Hunter, R.B. (1948) Lancet, 2, 806.

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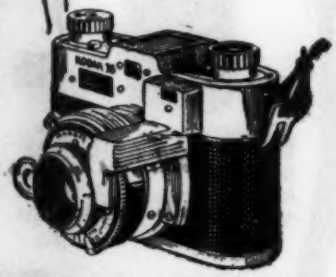

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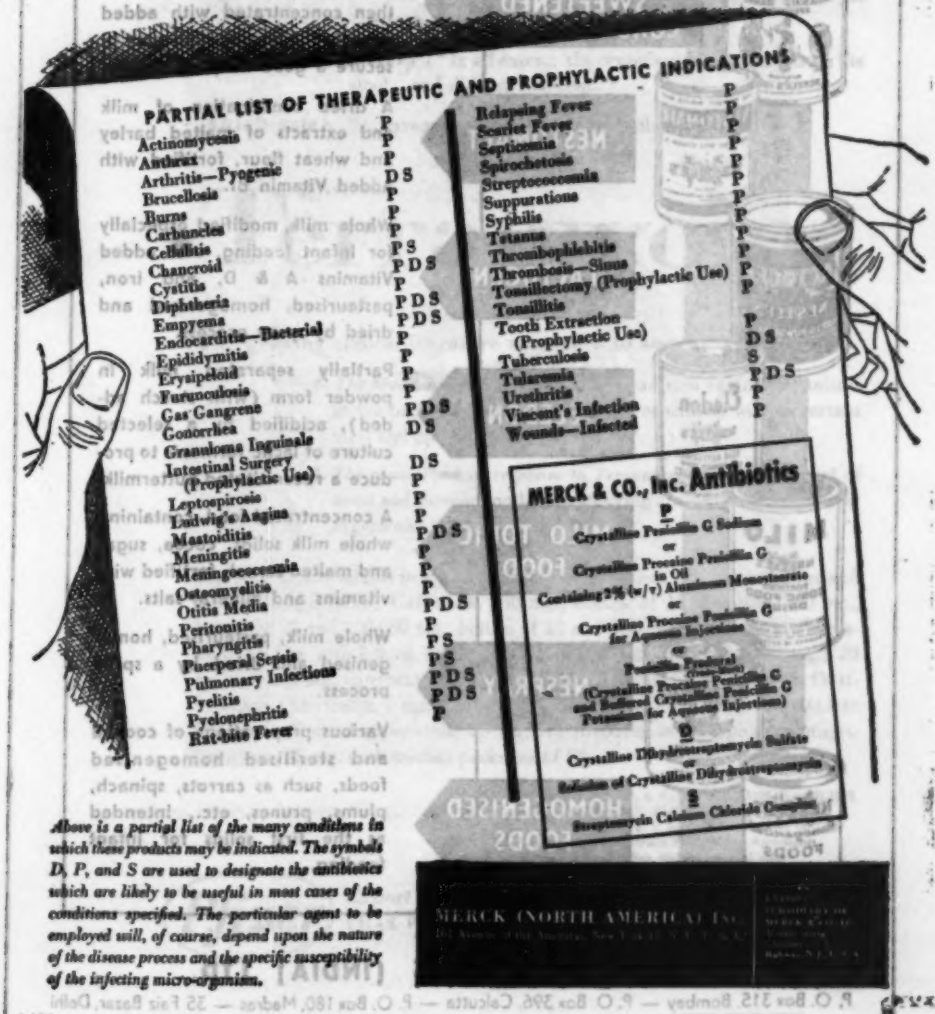

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1. Lissell, W. D., and Fletcher, A. P.: Brit. M. J. 2:1190 (Nov. 25) 1950.
2. Finland, M., et al.: Ann. N. Y. Acad. Sc. 53:230 (Sept. 15) 1950.
3. Dowling, H. R., et al.: Ann. N. Y. Acad. Sc. 53:433 (Sept. 15) 1950.
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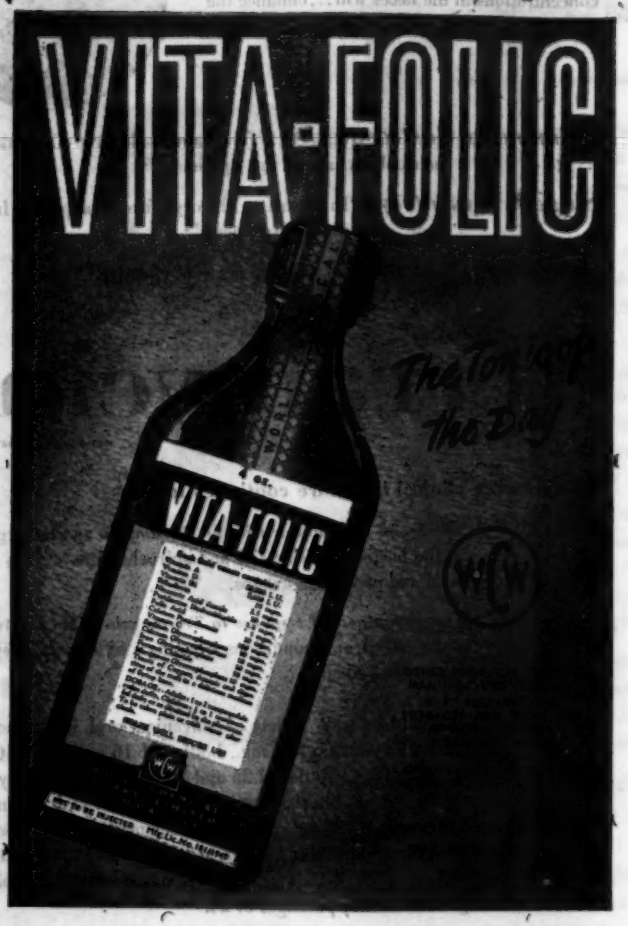

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THE SURGERY OF PATENT DUCTUS ARTERIOSUS

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AND

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Since the first successful ligation of a patent ductus arteriosus by Gross in 1938, many series of such cases have been reported in the literature (Gross, 1947; Jones, 1947; Conklin and Watkins, 1950). Surgical correction of this congenital abnormality has been established as a very worth-while procedure which can be done with comparatively little risk. From the literature it appears that interruption of the patent ductus arteriosus has not yet become a widely accepted procedure in this country. Although we are aware that some cases have been operated upon in India (Mahadevan and Bilimoria) we have found no reports in the available journals. We, therefore, are presenting two cases treated by us in an attempt to stimulate interest in this congenital lesion which in most instances can be so easily recognised and so safely corrected. As thoracic surgical treatment is now available in several centres in this country it is our hope that patients with this correctable abnormality will be detected more frequently and advised to seek surgical relief before serious or irreparable damage has occurred.

Children with an open ductus, by which much of the blood is diverted from the systemic circulation to be re-circulated through the lungs, are often underdeveloped physically. Due to this shunt an added burden is imposed on the heart which has to attempt to maintain the systemic blood pressure against a lowered peripheral resistance and to cope with the added volume of venous return to the left auricle. Surgical closure of the defect eliminates these factors as well as protects the individual from a super-imposed endarteritis.

In the fœtus the ductus arteriosus acts as a by-pass between the pulmonary artery and the aorta. This is a necessary physiological mechanism because, the fœtal lungs having no oxygenating function, most of the venous blood from the right ventricle has to be diverted from the pulmonary artery through the ductus Botalli into the aorta. At birth, with the establishment of respiration, the ductus arteriosus, being no longer necessary, gradually contracts and narrows until finally it is converted into a fibrous band called the ligamentum arteriosum. If the ductus fails to obliterate itself, an arterio-venous shunt between the aorta and the left pulmonary artery results and becomes a handicap to the individual throughout life.

An abnormal communication between the aorta and pulmonary artery permits the following possibilities:

(*a*) Due to diversion of a large amount of blood from the peripheral circulation, the general development of the individual may be retarded.

(*b*) The work of the heart is increased to maintain the peripheral circulation thus reducing cardiac reserve and may even result in cardiac failure.

(*c*) Endarteritis of the ductus or associated vessels may become established.

(*d*) Aneurysm of the duct, rupture or embolism from local thrombosis may occur.

Diagnosis

The clinical picture varies greatly. Some cases are asymptomatic and may live a normal life-span dying of other diseases and discovered only after death. Others are diagnosed on routine physical examination for complaints not related to the cardiac abnormality. But most patients have symptoms either directly from the patency of the ductus itself or from complications developing from it. General weakness, lack of proper physical development, shortness of breath and fatigue on exertion are the usual complaints. Pulmonary infections are not unusual. Rarely, the patient may seek initial medical advice because of symptoms due to endarteritis or a decompensating heart.

A well-marked continuous thrill in the second or third left intercostal space close to the sternum with a systolic accentuation and/or a to-and-fro "machinery type" murmur with systolic-diastolic continuity are important diagnostic findings. The systolic pressure may be normal, but the diastolic pressure is usually low, even as low as zero, causing a greatly increased pulse pressure. The heart is often enlarged due to left ventricular hypertrophy. Since the blood flow is from the aorta to the pulmonary artery there is no cyanosis unless there are associated abnormalities or due to late stages of cardiac failure.

Radiologically, the size of the heart is generally found increased and the pulmonary conus exaggerated.

Fluoroscopy often shows a "hilar dance" due to increased blood flow and increased pressure in the pulmonary arteries. The ordinary laboratory findings are not particularly helpful. Cardiac catheterization studies are diagnostic in most instances, showing a higher blood oxygen concentration in the pulmonary artery than in the right ventricle.

The diagnosis of patency of the ductus arteriosus is usually not difficult. Wood (1950) lists the following conditions which have to be considered in the differential diagnosis:

1. An aorta-pulmonary septal defect or perforation of an aortic sinus into the pulmonary artery. This offers great difficulty since the thirll and the murmur are almost identical to those in patent ductus. Even cardiac catheterization offers no help.

2. Perforated aortic sinus into ventricle. In this condition the thrill and murmur are more often found in the fourth interspace.

3. Other causes of continuous murmur, such as the jugular venous hum and the murmur of an arteriovenous aneurysm of the lung, coronary, intercostal or internal mammary vessels.

4. Rheumatic aortic incompetence and mitral stenosis. A rheumatic history and radiological evidence of pulmonary plethora, or if these are not conclusive cardiac catheterization may be helpful in differentiation.

5. Ventricular septal defect with aortic incompetence. The site and timing of the thrill and murmur are the only guides, but if these are atypical serious errors may be made. Cardiac catheterization is not always helpful.

Treatment

A patent ductus is basically a mechanical abnormality and is correctable only by mechanical means, that is, surgically. No other type of treatment can be effective. Every case of uncomplicated patent ductus should be treated surgically unless it is acting as a compensatory mechanism for other cardiac anomalies. It is true that a few people may go through a normal life and die in old age in spite of this congenital defect. Also Shapiro and Keys (1943) have reported two cases in whom the patency apparently sealed off spontaneously. But this happy outcome must be extremely rare. Bullock *et al* (1939) reviewed 76 cases from the literature and four personal cases and found that by the age of fourteen 14 per cent had died from the heart lesion; by thirty years 50 per cent were dead; by forty 71 per cent. Two lived to the age of sixty-six years. 86 per cent of the 80 cases died of the cardiac anomaly. Gross and Hubbard (1939) quoted Dr. Maude Abbott's series of ninety-two cases, in whom the average expectation of life was twenty-four years. As age advances, the walls of the ductus become thickened and friable and may be the seat of bacterial endocarditis. Operation at an early age, preferably between two and seven, when the walls of the arteries and duct are elastic, is advocated by all surgeons.

The early series of Gross as well as of most other surgeons were treated by ligation of the duct in continuity. Excellent and dramatic results were obtained, but in a few cases recurrence of symptoms due to recanalization were noted. Therefore a technique of division of the duct was developed by Touroff (1940), Gross (1944) and Crafoord and Nylin (1945). Potts and others (1949) have devised special clamps to facilitate the division of this very short structure. However, it cannot be said that division has supplanted ligation entirely. Blalock (1946) and many others prefer the simpler method of ligation to the somewhat more hazardous procedure of division and suture. The chest may be entered through either a posterolateral or anterior incision. The posterior approach is gaining in popularity and is more often used if division of the ductus is contemplated. The mediastinal pleura over the great vessels is incised between the left phrenic and the vagus nerves. The ductus can be identified by the palpable thrill. By blunt dissection it is freed from the surrounding structures, especially from the lip of the pericardium that extends out over it. The left recurrent laryngeal nerve must be identified, isolated and protected. Division and suture, or ligation, according to the preference of the surgeon, is then accomplished and the chest closed in layers with or without drainage.

Case Reports

Case 1—A boy aged 3 years and 6 months was admitted on 25-2-50. He was referred to us by his physician who had made a diagnosis of patent ductus arteriosus. From his first year he was subject to frequent colds and recurrent attacks of broncho-pneumonia. He had recovered from his last attack of broncho-pneumonia two weeks previously. The heart condition has been diagnosed first when he was a year and a half old. There was no history of congenital physical defects in the family. Physical examination revealed a heart within normal limits as to size and rhythm. There was a systolic thrill in the pulmonary area. A systolic diastolic murmur was heard best over the pulmonary area, but could also be heard over the entire praecordium. The blood pressure was 105/52 mm. of Hg. He had generalized hæmangiomata of the right half of the body and apparent overgrowth of the leg bones of that side, making the right leg 1½ inches longer than the left.

Radiographic examination showed slight enlargement of the left ventricle and congestion of the lungs. A hilar dance was not observed since the child was not co-operative enough for a fluoroscopic examination without sedation.

Hæmatological investigation: Hb.—11·25 grams; R.B.C.—3·8 million per c.mm.; W.B.C.—10,000 per c.mm.; polymorphs—30 per cent; eosinophils—16 per

cent; lymphocytes—50 per cent; monocytes—4 per cent.

Urinalysis : Nothing abnormal.

Stool examination showed hook-worm ova.

Operation was done on 2-3-50. The left pleural cavity was entered through the fifth intercostal space. On dividing the mediastinal pleura the ductus was easily identified. It was of large size, being 1·25 c.m. in diameter. Temporary occlusion caused no disturbance to the patient, so suture ligatures were placed at either end of the ductus and two transfixion sutures were applied between these and then a heavy silk tie was tied in the middle. The blood pressure came down from 142/98 mm. of Hg. just before tying to 114/82 mm. of Hg.

The child had a smooth convalescence.

On 18-10-50, when the patient was last seen he had had no more attacks of broncho-pneumonia. The blood pressure was 98/70 mm. of Hg. No murmur was audible.

Case 2—A young man aged 16 years was admitted on 13-10-50. He was referred to us from the E.N.T. Service of this hospital where he had gone for treatment of a persistent coryza. In a routine examination they discovered the patent ductus and referred him to us. Further enquiry revealed that he had had occasional chest pain and shortness of breath on exertion the last few months. Physical examination showed a small individual, much underdeveloped for his age. He had a normal sized heart. A systolic thrill was palpable in the left second intercostal space and a soft systolic-diastolic murmur could be auscultated in the second and third spaces close to the sternal margin. It was not loud and not the typical "machinery-type" murmur. The blood pressure was 108/70 mm. of Hg.

Radiographic examination showed a small heart, but a somewhat prominent pulmonary conus. There was congestion of the hila and a suggestion of a hilar dance on the right.

Hæmatological investigation: Hb.—14 grams; R.B.C.—3·97 million per c.mm.; W.B.C.—6,200 per c.mm.; polymorphs—58 per cent; eosinophils—2 per cent; lymphocytes—40 per cent.

Urinalysis was normal.

Operation was done on 19-10-50. The left hemithorax was entered through the fourth interspace posteriorly. The ductus was identified in the usual manner and was found to be 5 to 6 mm. in diameter and 5 to 7 mm. in length. The ductus was dealt with in the same way as in the first case.

Post-operatively, he developed some fluid in the chest which had to be aspirated twice. Although particular care was taken to isolate and protect the recurrent laryngeal nerve during the operation, post operatively he was found to have a paralysis of the left vocal cord. This should be temporary.

When last seen on 19-12-50 the patient was in good health. There was a soft systolic murmur.

Summary

A brief review of the literature on patent ductus arteriosus and its surgical treatment has been presented. Surgical correction of this abnormality is advisable before complications such as cardiac decompensation or endarteritis ensue. The diagnosis of patent ductus arteriosus is usually straightforward and its surgical treatment is comparatively simple. It is hoped that a greater interest will be taken by the medical profession in detection and treatment of patients suffering from this condition.

Two cases, one aged 3½ and the other 16 years, have been operated upon and are herein reported.

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SULPHABENZAMIDE—A DRUG FOR BACILLARY DYSENTERY

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The commonly used drugs in bacillary dysentery are the sulphadiazine, sulphaguanidine, sulphasuxidine, sulphathalidine, and sulphabenzamide. The physico-chemico-pharmacological properties of most of the above compounds have been fully studied and their characteristics excepting the last one have appeared in one or the other medical journal. It is for this, the properties of sulphabenzamide (sulphabenzide) are being compiled in the body of this paper.

CHEMISTRY

Sulphabenzamide is chemically sulphanilyl benzamide $NH_2C_6H_4SO_2NH\ CO\ C_6H_5$ and occurs as a fine crystalline powder, melting point 180-182°C. Its pharmacological characteristics have been fully described (Basu and Sikdar, 1947). The substance is soluble in 33 parts of alcohol (95 per cent), in 9 parts of acetone, but insoluble in ether. The solubility in water varies with the pH of the solution and would be evident from Table I below.

TABLE I—SHOWING SOLUBILITY OF SULPHABENZAMIDE AT 37°C

pH of the buffer	*mgms. per 100 c.c.*
7·23	1,319
6·42	906
5·19	228
4·38	65

It readily dissolves in alkali and alkali carbonates, but less soluble in hydrochloric acid. The pure compound dissolves in 250 parts of N-hydrochloric acid. Like other sulpha compounds it should be kept in a well closed container protected from light.

Abundant evidence has now been accumulated to show that the chemotherapeutic action of a sulpha drug is due to its competition with substances associated with the enzyme systems of the pathogenic organisms, and the drug action is believed to be brought about by combination with such enzyme systems (Woods, 1940; Sevag, 1946). Naturally it may be expected that the activity of any particular compound would depend on its solubility, distribution, dissociation, conjugation, or metabolic disintegration in the system. In sulphabenzamide, dissociation would be favoured by the possibility of the resonance of its ionic form as well as by the electron attractive character of the benzoyl group. The compound is dissociated upto 50 per cent at pH 4·78 and at higher pH (ca 7) it is almost cent per cent ionised (Bhattacharya and Basu, 1949), Table II shows the acid dissociation constants of some of the known sulpha drugs.

The N_4-acetylated derivative of sulphabenzamide is soluble upto 8·6 mgm. per 100 c.c. at 28°C.

TABLE II—SHOWING PK_a VALUES OF SULPHA-DRUGS

Drug	*pK_a*
Sulphanilamide	10·3
Sulphathiazole	7·15
Sulphabenzide	4·78
Sulphacetamide	5·40
Sulphapyridine	8·43
Sulphadiazine	6·48
Marfanil	9·71
Methyl Sulphabenzide	7·37

PHARMACOLOGY

Various investigations have been carried out in order to study the reaction of the compound in the biological system. Acute and chronic toxicological studies, effect on normal growth, its absorption and elimination through the body have been investigated along with its *in vitro* and *in vivo* potencies.

Toxicity—Sulphanilyl benzamide appears to be a well-tolerated sulpha compound. In a dose of 2 mgm. per gm. intraperitoneally to white mice (20 gms.) it caused a mortality of 16 per cent only, while a dose 1 mgm. per gm. of sulphaguanidine by the same route caused 100 per cent mortality (Bose and Ghosh, 1944) By extrapolating the figures for dose-mortality percentage, it appears that the intraperitoneal LD_{50} of sulphanilyl benzamide would be between 3·0 to 3·2 mgm. per gm. Intravenously as a sodium salt the compound was found to be tolerated in a dose of 1 mgm. per gm. while 1·5 mgm./gm. gave a mortality figure of only 20 per cent.

Administration of a daily dose of 0·2 mgm./gm. orally to rabbits for two weeks did not show any marked change in the percentage of hæmoglobin or in the total r.b.c. and w.b.c. count. The perecentage of granulocytes in peripheral blood appears to be unaffected.

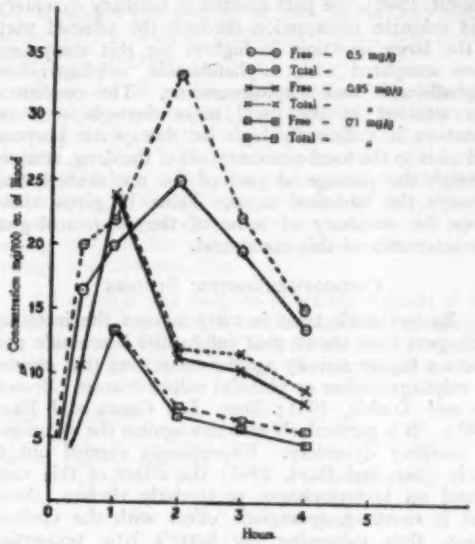
Effect on normal growth—Comparative studies with sulphanilamide showed it to be less deleterious than sulphanilamide on the progress of growth of immature weanling mice of weight varying from 10 to 11 gms. In 2 per cent drug-diet, sulphabenzamide showed an average gain of 4·01 gm. per mouse in 15 days, while sulphanilamide showed 3·8 gm. In another set with 1 per cent drug-diet, sulphanilamide gave weight gain of 3·5 gm. whereas sulphabenzamide showed average gain of 4·8 gms. In comparison with the control sets, however, both the drugs showed slight retardation effect on growth.

Absorption—Determination of true absorption curve is rather difficult as various factors such as tissue fixation, protein binding, and kidney filtration preclude such critical evaluation. In spite of these, the remnants of drugs after oral administration, determined at intervals of time, serve to give a fairly accurate idea as to the rate of absorption of a compound. Such a study with sulphanilyl benzamide showed that 92 per cent of the ingested drug was absorbed in 4 hours, thus pointing to its rapid absorption from the gastro-intestinal tract. Absorption after rectal administration in human beings is, however, very small and thus maintenance of high local concentration through rectal administration in disorder of rectum and sigmoid colon, may be ensured.

Concentraton in blood—The speed of intestinal absorption of sulphanilyl benzamide naturally allows a rapid concentration in the blood, which reaches its maximum in ½ to 1 hour. Even at a dose of 0·1 mgm./gm. the concentration was maintained at 4·5 mgm. as free after 4 hours, thus ensuring a sufficient therapeutic concentration in the blood. Mole for mole, the blood concentration compared favourably with that of sulphanilamide. The curves in the graph would give an indication of the nature of blood concentration in the system. In human patients a dose of 2 tablets of 0·5 gm. each, orally gave a blood concentration of 8·8 mgm. per cent as free and 8·9 mgm. per cent as 'total'.

Excretion through the kidneys—The excretion studies made on animals as well as on human volunteers (Bose and Ghosh, 1944) and patients showed that sulphanilyl benzamide is rapidly excreted in the urine. The average percentage of the total excretion of the drug in human volunteers varied from 70 to 87 per cent. Moreover the excretion of the drug as "free" is more (58 per cent) than that of the as conjugated (42 per cent). This appears to be a significant observation from the therapeutic point of view since sulphanilamide is conjugated more than sulphabenzamide under similar conditions.

Excretion through the intestinal tracts—A fairly rapid systemic absorption, maintenance of effective blood concentration, and a rapid rate of urinary excretion, precludes the existence of any high local concentration in the intestinal tract. But studies in fæcal excretion shows that the drug does attain a concentration in wet fæces, which is sufficiently bacteriostatic for all suscep-



GRAPH—SHOWING BLOOD CONCENTRATION OF SULPHABENZAMIDE IN MICE

TABLE II—SHOWING THE PHARMACOLOGICAL ACTIONS OF SULPHABENZAMIDE

Subject of study	*Host used*	*Findings*	*Remarks*
1. Absorption after oral use ..	Mice	80-90% absorbed in 4 hours	Rapid excretion
2. Urinary excretion ..	Man	70-87% in 72 hours	Fairly rapid excretion
3. Maximum blood concentration after oral use ..	Mice	24·2mgm.% with as "free" after dose of 0·25mgm./gm. orally	Maintenance of high therapeutic concentration
	Man	8·8mgm.% as "free" after 3 hrs. with 2 tablets orally	
	Rabbit	10·8mgm.% as "free" with a dose of 0·5mgm./gm. orally	
4. Acetylation Blood ..	Mice		Low conjugation in the system ensuring therapeutic efficiency for the compound
	Rabbit	7·7% with 0·1mgm./gm. dose 6·2% with 0·25 mgm./gm. dose	
Urine	Man	14·8% with 0·5mgm./gm. dose 4·9% with 0·5 mgm./gm.	
5. Excretion through fæces ..	Mice	30-40% after 1 gm. oral dose	
6. Concentration of drug in wet faeces		10 to 20%	
		"Free" 27·5mgm. per cent 'Total' 41 mgm. per cent	Local concentration in intestines
			Shows satisfactory bacteriostatic concentration in intestinal lumen
7. Concentration of drug in liquid faeces, during excretion after subcutaneous injection of 0·5 mgm./gm. (at the 4th hour)	*Parts*	*Free*	*Concentration mgm.%* Total
	Stomach	2·9	3·9
	Small intestine	5·7	8·3
	Caecum	23·1	28·3
	Large intestine	4·9	7·3

tible intestinal organisms. Moreover, the drug even when absorbed into the system has a tendency to be re-excreted into the intestinal tract, particularly through the cæcum and large intestines (Bose, Ghosh and Rakshit, 1946), the part affected in bacillary dysentery. This selective re-excretion through the affected parts of the large intestine, is highest for this compound, when compared with sulphanilamide, sulphapyridine, sulphathiazole and sulphaguanidine. The concentration attained in the fæcal mass through such re-excretion is sufficiently high for therapeutic purpose, and adds to the local concentration of the drug, attained through the passage of part of the unabsorbed drug through the intestinal canal. Table II given above gives the summary of some of the pharmacological characteristics of this compound.

Chemotherapeutic Studies

Bacteriostatic tests *in vitro* against the intestinal pathogens have shown that sulphanilyl benzamide possesses a higher activity against them than that exerted by sulphaguanidine or phthalyl sulphathiazole (Brownlee and Tonkin, 1941; Bose, Sen Gupta and Basu, 1945). It is particularly effective against the organisms of bacillary dysentery. Experiments carried out to study (Sen and Basu, 1945) the effect of this compound on bacteriophages particularly cholera, shows that it exerts a synergistic effect with the cholera-phage, thus enhancing the latter's lytic properties. These findings suggest that the compound may be usefully tried in cholera cases, undergoing treatment with bacteriophage.

In vivo protection tests on white mice against systemic infections show that sulphanilyl benzamide exerts a powerful protective action against highly virulent hæmolytic streptococci. Against pneumococcus type I it exerts a moderate protection, though inferior to sulphapyridine (Bose and Ghosh, 1945; Siebenmann and Schnitzer, 1943).

Clinical Studies

In a number of carefully selected cases of typical bacillary dysentery, where 80 per cent cases were bacteriologically positive, Bose and Ghosh (1945b) showed the high efficacy of sulphanilyl benzamide in a relatively low dosage. Cases showing Flexner and Sonne infections showed dramatic results while cases of acute Shiga dysentery responded, but required a higher dosage and a longer period of administration. These findings were later confirmed by hospital trials by Mojumdar *et al* (1945) where they demonstrated a particularly enhanced activity of this compound on Sonne dysentery cases. Swyer and Yang (1945) working with cases of Flexner and Sonne dysentery also obtained greater effectiveness with sulphanilyl benzamide and considered it superior to succinyl-sulphathiazole.

Chakravorti and Misra (1946) reported a large number of cases of intestinal disorders of various types, such as bacillary dysentery, recurrent enteritis, entero-colitis, choleraic diarrhœa of children and cholera. Bacillary dysentery and enteritis cases were found to respond specifically to sulphanilyl benzamide.

Manifestations of clinical toxicity in spite of a comparative large dosage and systemic absorption have not been noted by these investigators. A few cases of occasional nausea or vomiting, particularly in children have been reported but the symptoms could always be checked with stoppage of the drug. It is, of course, necessary that sufficient fluid should be administered, specially in cases of dehydration, and alkalies given to keep up the rate of urinary excretion. In cases of chronic dysentery carriers it is desirable to administer several courses of this drug, with periods of rest in between so that its particular selective re-excretion through the affected ulcerated parts in bacillary dysentery might come into full play so as to tackle the ulcers effectively.

It is difficult to expect that any single drug would be competent to tackle all cases of bacillary dysentery, where diverse pathological factors are at play. The emergence of the knowledge of bacterial resistance to drugs has also added to the difficulties of a permanent chemotherapeutic cure. However, with the recent trends of research it may be hoped that infectious diseases will soon be overcome and treated as occurrences of the past.

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OBSERVATIONS ON ARGEMONE OIL AND DETOXICATED ARGEMONE OIL

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The literature on the subject of epidemic dropsy is voluminous. Many theories had been propounded in the past concerning its causative agent but now it appears that epidemic dropsy is caused by ingestion of impure mustard oil contaminated with argemone oil.

Argemone oil contains two alkaloids, sanguinarine and dihydrosanguinarine, which have been isolated by Sarkar (1948). He also pointed out that of these two alkaloids sanguinarine is more toxic than dihydrosanguinarine.

Roy (1950) elaborated a process by which he removed the above-mentioned two alkaloids from argemone oil. This is of great significance, since if it is possible commercially to isolate these alkaloids from argemone oil, then ingestion of mustard oil contaminated with argemone oil may not cause clinical epidemic dropsy.

In the present paper an attempt has been made to corroborate the findings of Roy by feeding experiments. This is only a preliminary note; and further work is in progress.

Two sets of guinea pigs were chosen,—the one getting pure argemone oil, and the other getting argemone oil freed from the toxic alkaloids by the method adopted by Roy. The guinea pigs were given oral feeding with the help of a bent metal canula fitted with a syringe, the oil being dropped in the posterior part of the tongue drop by drop. After the initial feeding with oil, the animals were allowed to have the average animal-house diet.

An attempt was made to select the animals of the same litter of equal weight, but failing in this the guinea pigs were so chosen that they might be of average weight as far as possible. On death, immediate

TABLE I—PURE ARGEMONE OIL GROUP

Animal	*Weight in gms.*	*Period of longevity in days*	*Total oil given in c.c.*	*Average ingestion of oil per day in c.c.*	*Remarks*
No. 1	270	7	16	2·2	Loss of appetite.
No. 2	200	7	12	1·7	
No. 3	230	4	9	2·25	Marked loss of weight and falling of hair after the fourth day.
No. 4	235	9	17	1·92	

TABLE II—ARGEMONE OIL—ALKALOIDS

Animal	*Weight in gms.*	*Period of longevity in days*	*Total oil given in c.c.*	*Average ingestion of oil per day in c.c.*	*Remarks*
No. 5	170	9	13	1·4	
No. 6	160	18	21	1·1	No appreciable loss in weight but œdema of feet of all animals with moderate loss of hair. No loss of appetite.
No. 7	230	15	20	1·3	
No. 8	235	15	20	1·3	

Animals. N. 7 & 8 were still living when they were made ready for post-mortem examination.
Animals No. 3 & 5 died in the night, so no post-mortem and histopathological studies were done. In the remaining animals post-mortem examination was done and the result noted.

antopsy was done and tissues were fixed for further histological studies. Table I indicates the average longevity and average amount of oil ingested per day.

The nacked-eye findings on the post-mortem examination did not reveal any fluid in any one of the serous sacs. In the argemone oil group nearly all the organs showed intense congestion, being dark in colour. In the other group the organs did not show much congestion.

Case 1—Heart showed dilatation of vessels beneath the pericardium, there was marked engorgement, but no hæmorrhage.

Spleen showed hyperæmia of the capillaries.

Kidneys—The cells of the tubules showed fatty change which was patchy in nature; at places they were normal and there was no change in glomeruli or the vessels.

Liver—The branches of the hapatic artery showed dilatation, interlobular veins and sinusoids showed engorgement. No fatty change was noticed.

Case 2—Heart showed capillaries dilated beneath the pericardium. The muscle was normal.

Spleen showed dilated sinuses; hyperæmia was present.

Kidney showed fatty degeneration, patchy in character with some dilatation of the capillaries; glomerules were normal.

Liver showed dilatation of sinuses with engorgement of the central vein. But the change was not so marked as in Case 1.

Suprarenal showed widespread hæmorrhages into its substance. Small intestine was normal.

Case 4—Heart showed dilatation of the subpericardial vessels. Muscle was normal.

Liver showed engorgement of the capillaries and sinusoids.

Spleen showed engorgement of sinusoids and capillaries.

Kidney showed dilated capillaries; patchy, fatty, degeneration was present, not so well-marked as in previous two cases. At some places, cloudy swelling was seen.

Small intestine revealed no change.

Case 5—Liver—Normal.

Kidney—Normal.

Heart showed dilatation of some subpericardial vessels; muscle fibres normal.

Spleen—Normal.

Suprarenal showed hæmorrhage into its substance, and cloudy swelling at places.

Small intestine—Normal.

Case 7—Liver—No change; normal.

Heart—Vessels under the pericardium showed some dilatation; muscles normal.

Kidney showed cloudy swelling of the tubules.

Spleen showed dilatation of the sinusoids with engorgement.

Suprarenal showed hæmorrhage and cloudy swelling.

Small intestine—No change.

Case 8—Heart, liver, spleen and intestine—all normal.

Kidney showed cloudy swelling.

Suprarenal showed cloudy swelling with scattered hæmorrhages into its substances.

Discussion

De and Chatterjee (1935) had reported a case of epidemic dropsy the heart of which showed dilatation; the capillaries showed increase in number with enormous dilatation. The muscle fibres were normal. Shanks and De (1931) had reported the post-mortem and histological findings of 4 cases dying from epidemic dropsy. The salient feature of their observation on the heart was dilatation of the vessels in the subpericardial fat with normal muscle fibres. The intestine showed dilated vesssels in the submucosa with engorgement of capillaries in the subperitoneal fat and longitudinal muscles. The liver, spleen and kidney were normal.

Parischa and Lal (1939) had conducted feeding experiments with argemone oil in guinea pigs and mice and had found well-marked changes in the liver, kidneys and intestines. They observed congestion and thrombosis in branches of the portal vein, with fatty degeneration and small foci of necrosis near the periphery. The kidneys were a picture of acute glomerulonephritis with well-marked degeneration in the convoluted tubules; there was marked congestion of the vessels with hæmorrhage at some places.

Summary

The author's findings on the heart are in accord with the findings of De and Chatterjee and Shanks and De. The picture of acute glomerulonephritis as observed by Parischa and Lal were not found. It was expected that in group II the findings would be normal, but it had not been so. Though the alkaloids, sanguinarine as well as dihydrosanguinarine, had been removed from the argemone oil it had even then produced its effects, though in a less marked manner. But it may also be due to the effect of argemone oil itself which is classed as non-edible, or it may be due to some factor or factors other than sanguinarine and dihydrosanguinarine alkaloids. It is too early to say which of them is specifically responsible for this.

Ackowledgment

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The slides were kindly examined by Dr. A. K. Guha, Asst. Bacteriologist to the Government of Bihar. All the samples of argemone oil and argemone oil freed from the alkaloids were supplied by Dr. A. C. Roy, Science College, Patna.

Lastly, I would like to thank Prof. B. Narayana, Principal, Medical College, Patna, for his suggestions and encouragement in this work.

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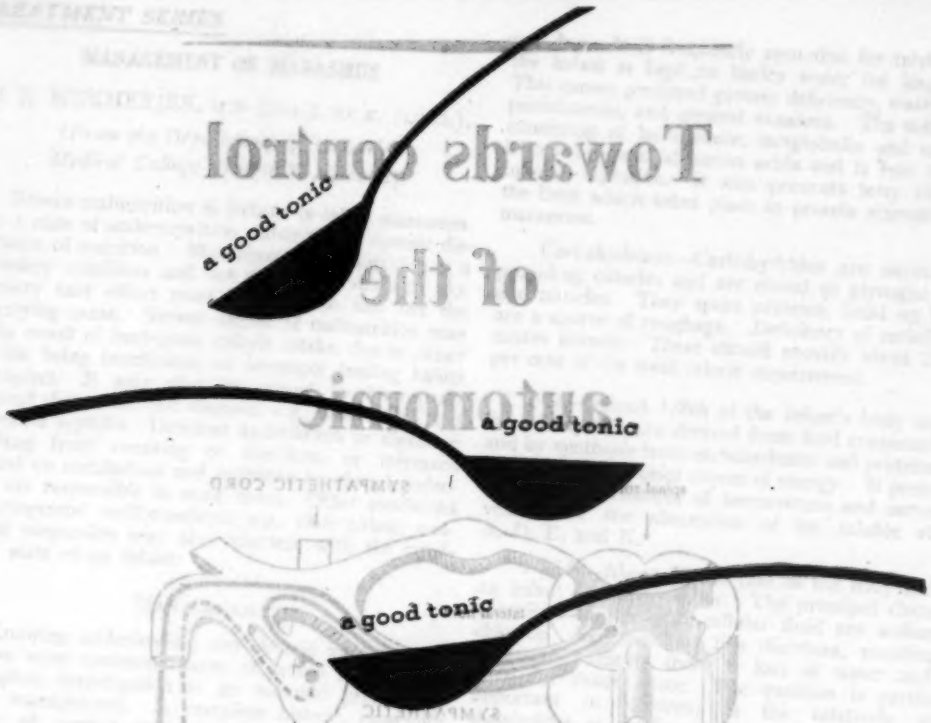

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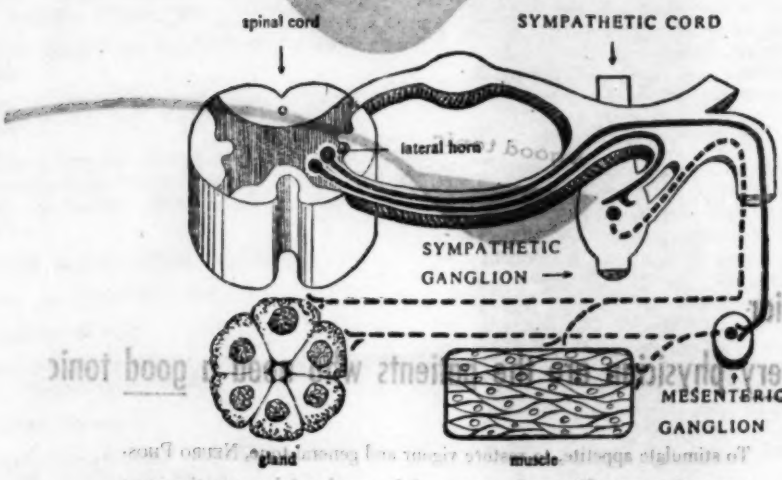
Towards control of the autonomic



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TREATMENT SERIES

MANAGEMENT OF MARASMUS

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Severe malnutrition in infants is called marasmus. It is a state of undernutrition rather than a specific disturbance of nutrition. Marasmus or malnutrition is a secondary condition and not a primary disease. So, in every case effort must be made to find out the underlying cause. Severe degree of malnutrition may be the result of inadequate caloric intake, due to either the diet being insufficient, or improper feeding habits or neglect. It may also be caused by improperly balanced diet or chronic diseases, *e.g.*, tuberculosis and congenital syphilis. Deficient assimilation or digestion resulting from vomiting or diarrhœa, or increased demand on metabolism and nutrition by chronic infections are responsible in some cases. Other conditions like congenital malformations, *e.g.*, cleft palate, congenital megacolon may also interfere with the nutritional state of an infant.

MANAGEMENT

Knowing underfeeding and chronic infections are the two most common causes of severe malnutrition a complete investigation is an essential preliminary to the management. A complete history, especially history of contact with a tubercular patient and possibility of congenital syphilis should be kept in mind. A detailed history of feeding in an artificially fed infant is important. In breast fed babies a test-feed over a period of 24 hours or at least for 3 feeds during 24 hours should be done. Usually the underfed baby is constipated and cries all the time. In artificially fed infants the caloric intake is more easily determined from the amount and strength of feeds. A search for infection should be diligent, including a mantoux test for primary tuberculosis. A nasopharyngitis or otitis media or an urinary tract infection should not be missed. In our country stools should always be examined in order to determine the presence of a chronic intestinal infection. Fever is often absent. Congenital abnormalities should be excluded by the history, and from physical examination and laboratory tests. Wasting of premature infants is not uncommon. So a history of prematurity should be ascertained.

It is essential to be acquainted with the principles of dietetics in order to treat a case of malnutrition. In marasmus the amount of food is calculated from the expected weight. An infant needs about 45 to 50 calories per pound of body weight per day. This is supplied by 2½ oz. of human milk or cow's milk per pound of body weight in 24 hours.

Proteins—It is hardly realised that infants and children require weight for weight more proteins than the adult. An infant during the 1st year of life requires 1·5 to 2 gm. of protein per pound of body weight per day. It is frequently seen that for trivial reasons the infant is kept on barley water for long periods. This causes profound protein deficiency, wasting, hypoproteinæmia, and general anasarca. The milk protein consisting of lactalbumin, lactglobulin and caseinogen is rich in essential amino acids and is best suited for infants' digestion. It also prevents fatty changes in the liver which takes place in protein starvation as in marasmus.

Carbohydrates—Carbohydrates are necessary for providing calories and are stored as glycogen in liver and muscles. They spare proteins, build up fats and are a source of roughage. Deficiency of carbohydrates causes ketosis. These should provide about 25 to 50 per cent of the total caloric requirement.

Fats—About 1/8th of the infant's body weight is fat. Body fats are derived from food consumed as fat and by synthesis from carbohydrates and proteins of the diet. Fat is the chief source of energy. It protects the infants from changes of temperature and serves as a vehicle for the absorption of fat soluble vitamins A, D, E, and K.

Fluids—About 70 per cent of the body weight of an infant is due to water. The principal electrolytes contained in the extra-cellular fluid are sodium and chloride. In conditions like diarrhœa, vomiting and excessive sweating there is loss of water and salts from the tissue space. The question is particularly important in children, as the relatively greater metabolism in children causes greater loss of water by evaporation. The higher metabolic level also causes a greater amount of waste products to accumulate, and this requires a relatively large minimum excretory urine. The effect is an increased loss of water from the body. When external temperature is raised the heat lost from the surface is by means of evaporation, and this takes place at the expense of water from the tissues. Surface area of the child being comparatively greater than that of the adult this loss is greater in children. In marasmus the subcutaneus fat is lost and so there is rapid loss of heat, and consequently of water from the body, with further enhancement of metabolism and a further increase in the minimum excretory urine volume. This is of great importance in the tropics. When diarrhœa is also present there is enhanced salt and water depletion. Thus in children and much more so in the marasmic ones there is a good deal of salt and water depletion by vomiting and/or purging. Finding of whether there is salt depletion or not is as important as taking the temperature or recording the weight in a marasmic baby. This can be determined more correctly by urinary chloride estimation than by the estimation of blood chlorides. Abott has pointed out that the concentration of sodium and chloride in blood cannot mirror the total loss of these ions because of the presence of adjustment mechanisms. Significant fall in plasma chloride occurs only when the total deficiencies are of a very gross nature. Urinary chlorides can be estimated easily by Marriot's modification (1947) of Fonta's method. If urinary chlorides are deficient or

absent the addition of 1 ounce of half-strength normal saline to each feed is urgently indicated.

Other minerals—The requirement of iron, calcium and phosphorus is well known. Milk contains very little iron and so nutritional iron deficiency anaemia is very common in infants and specially marasmic infants where diet is faulty and probably there is a superadded infection. Milk is the only source of calcium and phosphorus for infants and so in marasmic child, where feeding is improper and diarrhœa is present there is also a deficiency of calcium and phosphorus in the tissues.

Vitamins—Often in malnutrition signs and symptoms of vitamin deficiency, *e.g.*, rickets, tetany, scurvy, xerosis, xerophthalmia, keratomalacia, phrynoderma, nyctalopia, pellagra, etc. are present. Therefore, care should be taken to administer these vitamins. Vitamins in watery solution form is available in the market and are convenient for use.

The dietetics and management may be followed as in the following scheme:—

The initial caloric intake should be 2/3 of that for the expected weight at that age. The caloric value of the diet is then gradually increased. This increase would depend upon the tolerance of the child and the condition of the child should be watched while the caloric value is raised. The importance of increasing the diet gradually in the management of a marasmic baby has already been pointed out (Mukherjee, 1947).

Nature of the food—(1) Lactic acid milk*—when lactic acid is added to the cow's milk two radical changes occur. First the buffer effect of the cow's milk (which is normally much greater than that of the breast milk) is reduced and so the gastric pH during digestion of the acid milk becomes almost identical with that during digestion of breast milk. The importance of maintaining a fairly acid pH will be realised, when the fact is taken into account that the hydrochloric acid of the stomach is definitely decreased in infants during the period of infection. The degree of acidity maintained by lactic acid milk not only inhibits becterial growth but apparently favours the normal functioning of the pylorus, stimulates the flow of bile, intestinal and pancreatic juice and promotes the absorption of calcium. The second change which occurs is the formation of a soft flocculent curd. This lactic acid milk is better used half cream to start with. As the condition improves full cream acid milk may be given.** *Protein milk* was devised by Finkelstein and Meyer. The safest and surest of all special foods used for marasmic infants is protein milk. The effectiveness of protein milk in the treatment of diarrhœa is in part due to the fact that its high protein content tends to produce alkalinity of the intestinal contents. In this alkaline medium fat combines with calcium and magnesium to form fatty soaps which are constipating. It is readily digestible. In diarrhœic states high level of intake usually results in increased absorption. If a nonfermentable carbohydrate like dextri-maltose is added to the protein milk the requirements can be satisfied. Roughly one drachm of sugar to 4 ounces of milk mixture increases the sugar content to about 4 per cent. A dried protein milk is convenient and may be available in the market† Protein milk may be prepared as follows—Add 30 grs. of calcium lactate in 16 ozs. of cow's milk and boil. Casein will be precipitated. The casein is taken on a piece of muslin and drained for an hour without pressing. This dried casein is slowly rubbed over a fine sieve and added to 8 oz. of butter-milk and add 8 oz. of water (Butter milk is made by adding 1 teaspoonful of sour milk, to 16 ounces of cow's milk. This is allowed to get sour for 12 hours in a warm place and skimmed. The lower portion is then drained off). Protein milk yields 19 calories per ounce, and contains much less fat than cow's milk. Marasmic babies do not tolerate more than 2 per cent of fat and the fat content of protein milk is not more than 2·2 per cent. The marasmic children should be regularly weighed and a weight chart should be kept. When weight begins to increase and digestion improves Radiostoleum 5 drops a day should be given. Ascorbic acid can be given upto 200 mgm. per day which is about 4 or 5 times the normal daily requirement. If severe hypoproteinæmia and œdema are present intravenous administration of plasma is highly indicated and very effective. About 100 c.c. can be given daily by slow intravenous drip. If dehydration is marked fluid should be given parenterally, especially when oral administration is rendered ineffective by vomiting.

When the infant is steadily putting on weight Benger's food may be given. As stated before the marasmic infant requires more calories per pound of actual weight and so large amount of food may be necessary. In such cases the food prescribed thickened with Benger's food is of advantage. Benger's food is a mixture of wheat-flour and pancreatic extract, and when prepared in the way advocated the starch is in a soluble form and the proteins are digested. One ounce of Benger's food yields 113 calories. Of the sugars dextri-maltose is best tolerated by the undernourished infants. Augmentation of protein content if necessary can be done by casein, or protein hydrolysate.

Signs of marked vitamin deficiency are often present in marasmic children and these should be carefully looked for. In presence of xerophthalmia, follicular hyperkerkeratosis, night blindness and keratomalacia vitamin A in doses of 25,000 units twice a day is indicated. When a larger dose is necessary vitamin A concentrate (*e.g.*, prepalin) may be injected intramuscularly. Angular stomatitis, glossitis and anæmia calls for an administration of 5 mgm. of riboflavin daily.

* Proprietary preparations available in the market are: Lactic acids milk (Mead), Lacidac (Cow & Gate)—half or full cream. Eledon (Nestle—butter milk).

** Lactic acid milk is prepared by adding 45 drops of Acid Lactic (B.P.) to 20 ounces of boiled cooled milk, the milk being stirred vigorously with a glass or bakelite spoon as each drop of lactic acid is added.

† Proprietary preparation available in the market is Protein Milk (Mead).

In presence of pellagra or pre-pellagra states 100 mgm. of niacin per day is advocated. In presence of rickety rosary and epiphysical enlargement large doses of concentrated vitamin D are required.

Administration of Iron—Mackay's prescription for iron deficiency anæmias has been found very useful. Iron should be administered with caution and only after digestion has improved. Ferrous salts are more effectively absorbed than ferric salts but have the disadvantage that when kept in solution they readily take up oxygen and are converted into ferric salts. Glucose prevents this process.

R|-

Ferrous sulphate	..	1½ grains
Dilute hypophosphoric acid	..	¼ min.
Dextrose	..	20 min.
Chloroform water to	..	60 min.

One to three teaspoonful according to the needs can be given per day. But as severe intercurrent infection may delay the hæmopoietic response it should be given when infection has been controlled by chemotherapy and antibiotics. If there is macrocytic anæmia liver extract ½ c.c. I.M. on alternate days is given till there is a good reticulocyte response. In severe cases a transfusion of blood may be required. It is a safe rule to transfuse 10-15 c.c. of blood per pound of body weight. The rate of transfusion should be 6 to 8 drops for minute. In feeble babies the body should be smeared with olive oil and thyroid may be given by mouth. The dose of thyroid is gr. 1/20th per lb. of body weight per day. This possibly assists in circulation which is sluggish and weak.

SUMMARY—The outlines of ætiology and management of a marasmic infant has been described. The importance of determination of salt depletion should be realised, and the maintenance of salt balance and combating dehydration is streesed. This is more important in tropical countries where excessive salt and water are lost due to sweating.

It is important to introduce feeds gradually according to the tolerance of the child. Special foods like lactic acid milk and protein milk are very helpful in such cases.

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PRACTITIONER'S CORNER

PROTEIN COMPONENT OF FOOD IN NUTRITION

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The subject of proper nutrition and balanced diet is of great importance since it is vitally concerned with the general health of the people. A balanced diet is to provide all nutrients in respect to quality and quantity and in proper state of combination for all physiological processes from conception to death of the organism. In addition it should contain a minimum amount of injurious or toxic factors, if any. An attempt has been made in this paper to assess the part played by protein component of the food in nutrition in health and certain pathological states.

PROTEIN METABOLISM

The end products of protein digestion are amino acids. They are absorbed from the intestine and conveyed through the portal radicles to the liver. A portion of the absorbed material passes into the systemic circulation from where they are taken up by the tissues to make up for the wear and tear and for various other purposes. The rest is de-aminised in the liver. Ammonia is converted into urea and excreted as such with the urine. Of the non-nitrogenous residue, about 60 per cent is converted to glucose and most of the rest into ketone bodies.

PROTEIN STORAGE

It is believed that the body has the capacity to lose and replenish again its protein content by increase and decrease of the protein components of the tissues. Whipple suggests that proteins of the cells can be divided into three categories—(1) *fixed cell protein* which is indispensable for cell life or activity, (2) *dispensable reserve protein* which can be called upon for energy or other purposes, (3) *labile reserve protein* which can be readily turned out into the blood stream to maintain the plasma protein concentration. Liver contains a great amount of protein reserves of the body. Rapid interchanges can take place between the proteins in the liver, plasma and tissues in general to maintain a dynamic equilibrium.

PROTEIN REQUIREMENT

Allowance has been suggested to be a more suitable term since there is no conclusive way of finding out the exact requirement. It has been found that food proteins usually constitute 11 to 12 per cent of total calories in adults and 13 to 14 per cent of calories in children. The old dictum of Bayliss "Take care of calories and the proteins will take care of themselves" remains true since if a mixed diet is adequate in its calorific value it is found to be adequate in its protein contents The minimum amout of protein recom-

mended for an adult per diem is 1 gm. per kilo of the body weight. Pregnant and lactating women require more, *e.g.*, 1·5 to 2 gm. per kilo. while in case of growing children it is 2 to 4 gms. per kilo. of the body-weight. The barest quantity of protein needed for tissue repair and nitrogen balance is probably 30 to 40 gms. or even less provided the protein contains appropriate quantities of essential amino acids and the energy requirement of the individual is provided by adequate amounts of carbohydrate and fat.

Protein Sparers

If carbohydrates and fats are supplied in adequate quantities, much less protein is necessary to maintain the nitrogenous balance, hence these substances and particularly the former are called protein sparers. By giving enough carbohydrate to a fasting man, it is possible to reduce the nitrogen excretion to one-third its previous level.

Classification of Dietary Proteins

The old classification of dietary proteins into two qualities—first and second class proteins or proteins of high and low biological value seems to be of less significance in recent years. Proteins of animal origin (with the main exception of gelatin), however, supply all the amino acids in right proportions while in proteins of vegetable origin certain essential amino acids may be lacking. As the animal tissue proteins resemble very closely the proteins of human tissues, it is likely that they carry out more readily the functions of tissue repair, fresh tissue building and provision of raw materials for production of certain secretions, hormones and enzymes. Protein-rich animal foodstuffs are also a good source of fat-soluble vitamins and certain essential minerals. They are also more readily assimilable. The fact remains that both animal and vegetable foodstuffs can be good sources of protein provided they supply essential amino acids in adequate quantities.

Essential Amino Acids

Ingested protein is made up of a large group of amino acids of which about 23 are known. Some of them are essential in the sense that they are indispensable and cannot be synthesized in the body. Hence they are to be supplied in the food. Ten such essential amino acids are known. They are mostly concerned with maintenance of normal health and growth. Some of them have specific body functions to perform, *e.g.*, phenylalanine or tryptophane with adrenaline and thyroxine formation and methionine with protection of liver against injury from toxins.

Supplementary Action of Different Proteins

When two or more proteins are consumed simultaneously, deficiency of amino acids in one may be made good by another. Thus bread is deficient in lysine and beef tea in tyrosine and tryptophane but combination of the two provides the amino acids in fairly well adjusted proportion. Cannon has pointed out that 'all or none' law holds good in synthesis of proteins in the body. If any amino acid is missing, partial synthesis of body protein cannot occur, nor are the surplus amino acids stored until the missing ones are supplied. Even an interval of few hours between the ingestion of different proteins may be too long if they are needed to supplement each other.

Relationship of Proteins and Amino Acids with Certain Vitamins

In animal experiments with rats and certain other species, a relationship has been found to exist between the nicotinic acid and the amino acid tryptophan. Both of them have similar growth-promoting effects. There is evidence to suggest that tryptophan may be important precursor of nicotinic acid in rat as well as in man and this may explain the antipellagragenic activity of certain foods such as milk which are low in nicotinic acid content, but rich in good protein.

The vitamin B_6 is concerned with two fundamental reactions in relation to amino acids—(*a*) catalyzing transamination, (*b*) catalyzing decarboxylation of certain amino acids. The pyridoxine requirement in mice has been found to depend on the level of dietary protein.

Levine and his co-workers have shown that vitamin C is necessary for metabolism of amino acids: —phenylalanine and tyrosine. Premature infants require large quantities of protein, and if vitamin C is withheld, abnormal metabolic products from incomplete breakdown of these two amino acids appear in the urine within a week. The condition is readily corrected by administration of vitamin C.

Vitamin K promotes the formation of prothrombin in the liver.

Plasma Proteins

Plasma proteins are normally formed from food proteins but under conditions of protein starvation they are derived from tissue proteins. All the food proteins are, however, not equally effective in formation of plasma proteins. Casein and lactalbumin are very much effective in this respect. Generally speaking, animal protein is twice as effective as vegetable protein in combating hypoproteinæmia and œdema. It has been shown that methionine is essential for long-standing plasma protein formation. Plasma proteins are formed almost exclusively in the liver though there is evidence to suggest that some globulin may be generated by the reticulo-endothelial cells.

Role of Protein in Food

Protein is the chief source of nitrogen and sulphur and its supply in adequate quantity is necessary for maintenance, growth, repair, reproduction and lactation. It is a source of energy, 1 gm. of protein liberating 4·1 calories in the body. The specific dynamic action

of protein stimulates metabolism and in this respect it may be particularly suited to those living in cold climates. The protein-rich foodstuffs also increase the attractiveness, flavour and palatability of dishes.

Deficiency of Protein in Food

Deficient protein intake is usualy associated with deficiency in calories. This combined deficiency was noticed in a large number of cases amongst the prisoners of war. The effects of food protein deficiency may be summarised as follows:—

(*a*) *Œdema*—Keys and his co-workers made an experiment with 34 normal men who were kept for six months on a semi-starvation diet with an average of 49 gms. of protein daily. Pitting œdema developed within two months in some and eventually in almost all of them. The ratio of extracellular to intracellular fluid was doubled. The œdema could not be explained by hypoproteinæmia alone as there was only a very slight decline in the plasma protein concentration below the pre-starvation level.

It is believed that the principal factor in the development of nutritional or hunger œdema is very low protein intake leading to the lowered plasma protein concentration and reduced intravascular osmotic tension. Large amounts of fluids and salts that are often ingested are also contributory factors. Loss of intravascular osmotic pressure due to lack of protein is however not always a sufficient explanation of hunger œdema as shown in the above experiment. Lamy and his co-workers estimated the actual osmotic pressure in a number of cases and compared it with total blood protein content. The loss of osmotic pressure was much greater than could be accounted for by the fall in protein content. They assume that this is due to some of the small molecule protein being substituted by large molecule protein. Even with this proviso, they are of opinion that other factors—probably increased capillary permeability— are at play.

(*b*) *Anorexia*—The deficiency of essential amino acids in experimental animals leads to anorexia and rapid loss of weight.

(*c*) The development of mammary glands and their ability to secrete milk depends on the intake of protein food during the period of mammary development. Its deficient intake in the latter half of pregnancy has been found in sheep to be associated with deficient function.

(*d*) *Reduction of hæmoglobin formation*—Hahn and Whipple have shown that by limitations of protein intake in cases of anæmia, Hb formation may be reduced.

(*e*) *Diminished antibody formation*—Antibody properties are associated with specific modifications of the globulin molecules. But the exact relation between the plane of protein nutrition and antibody response is not clear. In animal experiments, severe hypoproteinæmia may be associated with a loss of ability to produce antibodies of certain kinds. In man, however, a reduction in the globulin content of the blood is very rarely met with.

(*f*) *Liver affections*—In experimental animals, fatty infiltration of the liver and massive liver necrosis may be found to occur as a result of dietary protein deficiency even in the absence of exogenous toxins. This is mostly attributed to dietary deficiency of two amino acids—methionine and cystine. In man, the dietary deficiency of such substances may be responsible for these liver changes and probably cirrhosis of liver in cases of long continued deficiency.

Protein Hydrolysates

So much expected at one time of protein hydrolysate does not seem to have been fulfilled. If the patient can digest protein, there is no special advantage of administering this by vein, while if intravenous administration is necessary, it can be replaced by the safer alternative—plasma and glucose.

Toxicity of Agenized Flour—Mellanby's observation that agenized flour caused hysteria in dogs led to some recent work being done on this line. The toxic agent is considered to be derived from the protein of the wheat and particularly from the gliadin fraction. The work of Moran suggests that the toxic agent may be formed by the action of agene on amino acids containing sulphur and particularly methionine. The result of investigation of two American teams on this has already been reported. Other animals like ferrets, cats and monkeys have been found to show neurological manifestations. Careful experiments on human subjects with over-agenized flour are in progress but so far no results have been published.

Role of Proteins in food in Injuries and Certain Diseases

Negative nitrogen balance may arise from a variety of causes. It may be due to deficient intake, impaired digestion, absorption and metabolism or due to excessive protein loss in trauma (including surgical operations), burns, infections, disuse atrophies, in nephrotic syndromes, hæmorrhages, etc. An attempt should be made to make up for the negative nitrogenous balance in these various conditions by suitable dietary means. A reference has been made below of some important clinical states—

(a) *Injuries, Surgical Operations and Manipulations and Burns*—Protein loss in these conditions occurs in a variety of ways. In addition to actual tissue destruction and loss of blood and exudates from the damaged area, there is protein loss due to excessive catabolism following injuries and due to disuse atrophy. Superimposed infection may further enhance the protein destruction. The protein loss in these conditions being severe, it is of importance to maintain a nitrogen balance as early as possible by a high protein diet. Carbohydrates and fats should also be administered in adequate quantities to supply the calorific requirement,

otherwise, the protein supplied will be used up as fuel.

(b) *Fevers*—For every rise of 1°F in the internal temperature, the basal metabolism is raised by 7 per cent. The appetite also fails at the height of fever, so that the energy requirement comes from the breakdown of tissues. The increased excretion of nitrogen and sulphur occurring during the fever is more than what can be explained by simple rise of temperature and raised metabolism.

In acute infections of short duration, the diet should be such as to save the patient from undue exertion including at the same time, if possible, some first class protein. In long continued fevers, the aim should be to administer as much nitrogenous food as possible without causing any ill effect to make up for the negative nitrogen balance. The carbohydrates should also be given in adequate quantities for its protein sparing effects.

(c) *Kidney Diseases*—Acute Nephritis—The inflamed kidneys should be given as much functional rest as possible. It has been found that up to 20 oz. of milk can be administered without an increase in the daily excretion of urea. Hence this amount of milk is recommended in the beginning of acute nephritis which supplies as much nitrogenous food as possible without adding any extra load to the kidney. Milk is also the ideal nitrogenous food in this respect since it supplies all the essential amino acids.

Nephrotic Syndrome—The most important factor in development of this syndrome is hypoproteinæmia due to massive albumin loss in the urine. To compensate for this massive albumin loss, a high protein diet is recommended. There is no objection to this high protein diet since the kidney functions are normal and there is no azotæmia. There being no hypertension, the possible pressure effect of proteins does not arise. On the other hand, the high protein diet has the additional advantage of producing diuresis through its end-product urea. Protein also stimulates metabolism which is lowered in nephrotic syndrome. The minimum amount of protein recommended per day is 1 gm. per kilo. of the body weight in adults (and 2 to 4 gms. per kilo. in children) over and above the daily urinary protein loss.

Chronic Nephritis—When uræmia threatens, the amount of protein in the food is to be reduced depending on the severity of azotæmia.

(d) *Liver Diseases*—The work of Sellers and his co-workers on experimental animals suggest that the lipotropic agent methionine may cure the cirrhosis of liver caused by the administration of carbon tetrachloride when the cirrhosis is still in the reversible stage. Equally good results are obtained when methionine is added to a low protein diet or when a high protein diet containing adequate amounts of naturally occurring methionine is administered. Sellers concludes that favourable clinical results obtained in patients with liver damage with an effective therapeutic

(Concluded at foot of col. 2, page 334)

SPECIAL ARTICLES

I

LEPROSY RELIEF IN THE U.P.

P. J. CHANDY, L.C.P.S., RAO SAHEB

Medical Superintendent,
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There are two types of leprosy institutions. Muir classifies them as centrifugal and centripetal.

The Centripetal Type—In this, the institution is considered to be an end in itself. Most of our institutions are of the centripetal type. The aim is to give relief to those who seek for admission. While this form of institution is beneficial to those who are admitted, it fails to get down to the root of the disease in the village community. The faults of this system are; the more attractive the institution, the more patients it enrols, and the area from which they are drawn, may be vague and ill-defined. The institution tends to become too large and unwieldy. The power to spread the disease tends to increase in direct proportion to their aggregation, unless the institution is effectively isolated from the surrounding inhabitants by some barrier difficult to penetrate. In attracting patients from a wide and undefined area a movement of leprous population is set up especially along certain lines of communication and as they travel unknown, they constitute a great danger to their possible contacts. If strict supervision is not exercised patients and their relatives are likely to come and settle down more or less permanently in the neighbourhood of such an institution.

The Centrifugal Type—This type of institution may be compared to a wheel of which the leprosarium is the hub, limited in size and radiating its activities to a definite rim, which encloses a clearly defined area. Davey has worked out this system in Eastern Nigeria with great success. How the centrifugal system may be worked out in this province is described in some detail.

A Scheme for U.P.

In the first place there should be an authority in the form of a board to initiate and direct all anti-leprosy activities. This board should include in its membership the heads of medical and public health services, the director of education, the director of agriculture, the director of panchayat, the director of industries and civil supplies, the chief engineer, and representatives from accredited social service agencies. This authority should be ultimately responsible for the initiation and establishment of leprosy centers, night segregation units, out-patient clinics, collective farms, surveys, and should devise methods calculated to control leprosy in the villages and towns.

Read at the XIV U.P. State Medical Conference.

The Leprosy Authority in consultation with the workers in the field should try to make arrangements for converting some of the existing institutions as leprosy centres; failing which new centrifugal institutions should be started in all districts where the incidence of leprosy is more than five per thousand of the population.

The centre must be situated in the country-side, and should be the focus of all anti-leprosy activities, both preventive and curative. Vitally connected with these institutions, there should be sub-units situated in different parts of the district.

The requirements of the leprosy centre are as follows:

1. Home or Asram for ambulant patients.
2. Fully equipped hospital or leprosarium.
3. Agriculture farm.
4. Industrial section.
5. Sales department.
6. General service buildings, *e.g.*, office, store, etc.
7. Social service buildings, *e.g.*, assembly hall, recreation hall, canteen, reading room, prayer hall, etc.
8. Home for cripples.
9. Sanatorium for children suffering from leprosy.
10. Utility buildings.

The staff should consist of the following for a unit serving five hundred patients—one general superintendent, one medical superintendent, one business manager, two assistant doctors, two compounders, two nurses, one agriculturist, one driver mechanic, two peons, two clerks, one store keeper, two sweepers.

The area of the land necessary for such a centre must be about 150 acres. Out of these, 100 acres may be used for cultivation, the rest may be used for buildings, roads, playgrounds etc.

The Sub-Units—These should serve as out-patient clinics, night-segregation dormitories, and temporary rest houses. These should also serve as points from which effective supervision of domiciliary treatment may be made by the staff employed in these sub-units. For staffing these sub-units we may make use of well-trained discharged patients of existing leprosy institutions. It is a good plan to arrange for the night meals of all patients who voluntarily come in for night segregation. The grain and cash necessary may be collected by primary school teachers with the help of the children who attend the schools. As these sub-units grow in size it will be necessary to supply a full time doctor and compounder and other staff. Near the sub-units, there should be collective farms where leprosy patients may work in the day and earn their livelihood. In suitable cases family allotments should be made to supplement the income of those who are unable to maintain their families. When patients are found neglecting their responsibilities towards the healthy section of the community, the matter should be reported to the village panchayat. To supervise the conduct of the infectious cases within the jurisdiction of a sub-unit there should be an inspector, preferably an ex-patient from a recognised leprosy hospital, who has been trained to distinguish the different types of leprosy.

The following buildings are necessary for a sub-unit. One house each for compounder, male nurse, dresser, cooks, warden. One dormitory for infective cases. One medical administration block consisting of a ward, dispensary, laboratory, doctor's room, record room, etc. A waiting room for out-patients. These houses could be built with materials available locally, and the people of the surrounding villages should be encouraged to contribute in money or kind. Those who are unable to supply money or materials should be persuaded to contribute a certain number of man-hours of work. The local supervision of the work may be left in the hands of a social service agency.

Supervision of the Sub-Units—The general supervision and special treatment of the patients attached to a sub-unit should be done by a visiting team from the centre. For this purpose, a day and time should be fixed for the weekly visits of the doctor and the staff from the centre. After treating the patients in the sub-unit, any one found suffering from lepra fever, trophic ulcer or any intercurrent disease should be carried on the ambulance car for expert treatment. The ambulance car may be so constructed as to have two compartments. One compartment in the back of the ambulance may be used for carrying patients. When the patient is discharged from the central hospital he may be taken back in the same ambulance into his village on a subsequent visit.

As a result of Dr. Cochrane's investigations in the Madras state it has been found that there has been a decrease in the open case rate and the child rate in those villages where night segregation has been enforced. The sub-unit which we have proposed above is a dormitory, rest-house, and out-patient clinic combined, run by well trained ex-patients, with the active co-operation and help of the village panchayats and social service agencies, and under the periodic supervision of the medical staff of the central leprosarium. A visiting team from the central hospital can visit two sub-units per day. Leaving a day off to be spent at the centre, and excluding Sundays it is possible to deal with ten sub-units per week by one visiting team.

If we have six such centrifugal institutions with sub-units attached as described above, we will be dealing with leprosy at sixty different points at different parts of the state. Success, however, depends on the spirit in which the scheme is worked out, and to begin with men with missionary zeal should start and maintain these institutions.

The control of leprosy in England in the middle ages was done with the help of the church. Regu-

lations were enforced through the authority of the church. Similarly, religious institutions in our state should come forward to help the government. To depend for every thing on the government is a selfish mentality and the sooner it goes the better it is for all concerned. Without the backing of religious institutions, village panchayats, and the lay newspapers, the control of leprosy is impossible. The rich and influential, should be prevented from evading the law. This is only possible by giving the rules and regulations regarding leprosy a religious sanction. While it is true that from the humanitarian point of view we must be kind to indviduals suffering from the disease, yet it must be remembered that like Moses and Manu, we must take a stern and realistic attitude from the public health point of view, and any one who wilfully and against the accepted laws of the land, spreads infection by coming in contact with the healthy, especially the young, should be dealt with firmly. The work we have to do is to build from below with the help from above; to begin in the village with the help from the city, to begin in the periphery with the help from the centre.

Urban Leprosy

In controlling leprosy in the cities and industrial areas special arrangements have to be made. Provision should be made for the examination of all factory workers and their families. All school children should be periodically examined. It is necessary to appoint a leprosy controller with a survey party to work under his supervision. It behoves city fathers and health officers to take leprosy as seriously as malaria, plague or any other major endemic disease: for then, and then only will there be any hope of controlling urban leprosy.

Social and Welfare Agencies

Social service agencies may be invited to co-operate in the work of leprosy relief and control. These associations may be requested to provide entertainments, and supply ameliorations to patients and their relatives. They may be asked to distribute pamphlets among school children and others and educate the general public as to the real nature of the disease. Individuals and societies interested in social service can find out suitable work for discharged patients, fight out their cases in the law courts, and see to the needs of their families, when the patients undergo institutional treatment.

In the fight against leprosy every individual can play a part. We need, not only doctors and nurses and compounders, but also engineers, school teachers, legislators, and others to help the cause by their advice and influence. Last but not least, there is the need for the effective co-operation of the students. They have played their part in the struggle for independence: but the part they have to play in future to free the country from leprosy will be found greater.

II

A PROGRAMME FOR DENTAL CARE IN THE HEALTH SERVICES IN INDIA*

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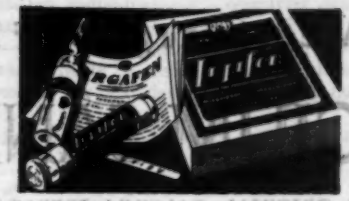
In the medical practice dentistry as a part of medical science has not received the importance or the attention which is its due, and as a part of public health service it is practically non-existent in our country. With the progressive growth of knowledge in medical science it has become increasingly clear that dentistry cannot be separated from other branches of medicine and without the fullest use of dental science an optimum state of health cannot be achieved either in the individual or in the community. It is estimated that at the present time there are not more than 5,000 practising dentists in India, which means that there is only 1 dentist for every 70,000 population. Of them again, only a small number is represented by properly qualified men. The Bhore Committee (1946) gives a proportion of 1 adequately trained dental surgeon for every 400,000 population. In contrast with this extreme dearth of dentists the dental problems confronting solution in our country from the public health point of view are probably formidable. Although actual organised investigations to assess the dental health in our country have been very few and far between, the following data (Table I) collected by the author from his own investigations and from the school inspection reports of various provinces will indicate the actual state of affairs:

The figures quoted in Table I in regard to only one item of dental ailments namely, the incidence of carious teeth among the school children of both urban and rural areas will give the readers an idea about the magnitude of the problem of dental health existing in India. The figures for Singur children are unexpectedly high for a rural area and the idea that the villagers in India suffer very much less from dental troubles than their brethren in the cities, though may yet be true for certain groups of population, is not borne out by the recent observations in the field. Nevertheless, the problem has not yet been viewed with as much alarm or importance as other public health problems although, in actual practice, the dental defects may be more universally distributed in India than other ailments.

To the casual observers the paucity of the number of dentists appear more marked than usual due to the dentists themselves at present carrying out their work under conditions of even greater isolation than those of the general practitioners, with little co-operation betwen each other, which is so much desired in the care of the teeth or the study of particular cases.

* Prepared at the suggestion of the Calcutta Dental College Students' Union, December, 1949.



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On the other hand, the public is not yet aware of the vital importance of teeth in maintaining the general health nor have they been given the opportunity to know the role of the dentists in preserving existing teeth or to provide efficient dentures. In fact, in our country the same forces, *viz.*, isolation, individualisms, lack of contact, lack of post-graduate training, economic barrier and, above all, ignorance—which prevent medical science from controlling diseases, make it much more difficult or rather impossible for the dental science and dentists to serve the community as best as they could.

The Bhore Committee (1946) made pointed reference to the fact that although in all progressive countries dental care of the population is an essential part of any comprehensive scheme of public health inculding medical relief, in India the matter had so far received little attention. It is, however, a happy augury to note that very recently the dentists from

TABLE I—SHOWING THE PERCENTAGE OF SCHOOL CHILDREN IN DIFFERENT PROVINCES WITH CARIOUS TEETH AND PYORRHOEA IN RECENT YEARS

Authors	*Year of observation*	PROVINCES *Name*	*Place*	*Number of individuals examined*	PERCENTAGE SHOWING *Caries*	*Pyorrhœa*
Public Health Report ..	1934 & 1935	Bengal	Calcutta	7980	12·8	—
			Municipalities	8102	10·0	—
			Rural	2146	9·5	—
Lal & Seal (1949) ..	1944	"	Singur health centre	2384	25·0	—
Sen, Seal & Sankaran (1946) ..	1946	"	"	400	42·4	—
Khan (1935) ..	1938	"	Calcutta	Not mentioned	8·3	—
	1939	"	"	"	10·0	—
	1940	"	"	"	10·0	—
	1942	"	"	"	17·0	—
Public Health Report ..	1934 & 1935	Bihar & Orissa	..	2287	Majority*	—
do. ..	do.	U. P.	Urban	93,000	9·0	4·0
			Rural	Not mentioned	9·3	1·3
do. ..	do.	Delhi	..	"	8·0	—
do. ..	do.	N.W.F.P.	..	46,319	7·0	—

* Percentage not stated.

different parts of India are making attempts to organise themselves into a corporate body while the Government are also conscious of the need of the dental service and have expressed the desire to support their cause which is really the cause of the people and of the country. All, however, agree that the National Health Service should include a comprehensive national dental service and is the only way to provide a more complete safeguard to the nation's health. Ideally, this service must be planned on the parallel lines to those laid down for medicine so that dentistry can also take its place in our National Health Service on exactly the same basis as all other special branches of medicine.

BASIC CONSIDERATIONS

Although it will be too premature to prepare a detailed scheme for the proposed service in our country which can take shape only after considering the nature of the prevailing dental problems, available technical staff (both quantity and quality), financial resources, the socio-economic conditions of the people with their food and social habits and, above all, public demand and public response, the ideal basic principles may be laid down as follows:

1. The service to be provided should be complete in every way possible.

2. It must be available to every member of the community irrespective of his caste, creed, economic status and social standing.

3. It must be aimed at prevention of defects even more than cure and repair.

4. It must be based on team work (dental surgeon, dental hygienist, dental mechanic and medical practitioner working in co-operation).

5. It should be an integral part of the Public Health service as one of its specialised branch.

6. It should be uniform over the whole country and planned on a national basis.

7. The methods of control and cure of diseases affecting teeth and gums should be devised according to the problems prevailing in the country and suitable for and acceptable to the people.

It would be futile at this stage to aim at the above principles in organising dental care for the masses owing to the existing difficulties in adjusting the programme to meet the following facts:

(*a*) The dental health of the vast majority of people of this country may be the most prevalent physical defect but adequate statistics are unavailable.

(*b*) There is an extreme inadequacy of the number of dentists to furnish the care needed to-day.

(*c*) There would be no reasonable means of financing complete dental care for all economic classes, even though there were enough dentists to render the services.

(*d*) Dentistry as practised to-day in the cities and towns is mostly for alleviation rather than prevention.

(*e*) There is not much of a public understanding of the problem except in a traditional way nor there is yet a popular public demand for a dental service although they may gladly accept it if it is organised,

B

No public health administrator can ignore these major facts in planning any public health dental programme. The present policy should therefore be mainly directed towards the removal of these difficulties while organising whatever service is possible under the existing circumstances to set the thing going. These may be further discussed below.

1. *Dental Problems*—It is a general belief in our country that the teeth and gums do not deteriorate or become diseased as much or as early in life as in the western countries. It was probably so in the past but with modernisation, (*i.e.*, so-called western civilisation) there has been considerable change in the mode of our life including our food habits and manner of living, particularly in cities and industrial towns in which restaurants, tea houses, caffetoria and other varieties of eating houses abound and the people live in highly congested areas, move about in congested conveyance, work in over-crowded offices and factories and frequently meet in congregations, cinemas and so on. Following these changes which affected our mouth hygiene and gastric physiology the dental complaints have increased considerably, being further aggravated in recent times due to the short supply and high price of nutritive and protective foods for the community. So, to collect the factual data on the subject as many sample surveys as possible may be incorporated as a routine procedure in the various surveys, *e.g.*, general health, nutrition, school health,. industrial health, maternal and child health and army health surveys, which are organised in our country from time to time.

Such surveys may be introduced as a part of the graduate training in dentistry and the senior students may be deputed to carry out school or any other short dental survey in the background of socio-economic, environmental and general health conditions, under the guidance of trained teachers. The best plan for the students or the dental service staff would be to associate themselves in the integrated health surveys as developed in this country by Lal and Seal (1949). The above procedures may in a few years' time reduce the gap in the knowledge of the local dental problems and will eventually provide the statistics necessary for the guidance of future planning.

2. *Dental Man-Power*—One fact that stands out most pre-eminently in the present discussion is the great shortage of qualified personnel. Even amongst those who practise dentistry or so-called dentistry more than half are mere technicians, mechanics or quacks, and, all included there is not more than 1 dentist for every 70,000 populationn as against 1 for every 2,500 (average) in the western countries.* The reason for this state of affairs is well known, namely, want of training facilities and attraction for young men to take up the profession. This has been ascribed to the fact that dentistry as a branch of medical science has so long been neglected by the Government, by the University and by the medical organisations in general. There is also an apathy among the general public towards dentistry. At present there are three centres, two in Bombay and one in Calcutta, where only a limited number of students, far too small for the size of the population, can enter each year for training. Only one of the colleges at Bombay (Sir Currimbhoy Dental College) is affiliated to the University of Bombay. The other two have not yet been accepted to have reached the University standard.

Thus, there is a great necessity for a large-scale expansion of dental education in our country by instituting many more colleges in different parts of the country. In this respect the country is greatly indebted to the pioneers of Dental Education and particularly to Drs. Ahmed, Modi, Patel, Nair and Desai, who have succeeded in developing dental institutions in our country depending mainly upon their personal zeal and enterprise. But the multiplication of such enterprises, though difficult as it is, is not likely to be of as much help at this stage as the general medical training for which there is enough scope and public demand irrespective of the Governmental services. Dental education should therefore be the primary concern of the Government—both central and provincial. They should not stop at mere increasing the output of trained men but to attract capable and brilliant young men to the profession they should increase the scope by introducing, as soon as possible, dental services on a minimum scale with provision to expand as the trained men are available. Also, the entrance to the dental profession must be made possible for all shades of people by scholarships and grants. With the improvement of scope, however, philanthropical and enterprising men may be attracted or prevailed upon to extend their benevolence upon their own countrymen by sponsoring more dental institutions or by offering endowments, scholarships and donations.

3. *Financial Position*—The above developmental plan is greatly handicapped due to finance, for which our Government are finding certain difficulties at the present moment. But taking an optimistic view it is hoped that the present condition will be soon overcome to enable the Government to undertake the various developmental programme under contemplation. Even if the plan is operated, there will still be shortage of personnel for many years to come, for, according to the proportion of 1 dentist per 5000 population, recommended by the Bhore Committee, the country would require 70,000 dentists, whereas we have at present only 5000, many of the qualified ones among them being foreign trained. Even to reach a proportion of 1 dentist per 10,000 population 35,000 dentists would be required. The immensity of the task can be envisaged when we know that our country could not even bring up the number of qualified medical practitioners to 50,000 in more than one hundred years since the introduction of the modern scientific system. Thus a complete dental service for the whole

* The distribution of Dentists in several advanced countries, as quoted by Burn (1947) is as follows:
U.S.A.—1 dentist to every 1500 population.
Norway—1 dentist to every 200 population.
Australia—1 dentist to every 2100 population.
Canada—1 dentist to every 2200 population.
Great Britain—1 dentist to every 3300 population.
France—1 dentist to every 4100 populaton.

population will not be possible. In fact, it has not yet been possible even in the most advanced countries. If at all, U.S.S.R. may be an exception but we possess no authentic record about that country.

4. *Selective Dental Services*—In view of the financial difficulties, mentioned above, the services may at first be rendered to the selected groups for whom dental care is most important, namely, children, adolescents and nursing mothers. The first step towards complete service should be to provide for these groups. The adult population does not at the moment make demand, and until the health propaganda has educated the public there will be very little claim for it. Nevertheless, dental services for the adults may be easily introduced in all hospitals, medical and dental schools or colleges, in industrial concerns, factories, rural health centres and for army recruits. Dental care may also be introduced as a part of the service in health insurance scheme. But a service available to all below the age of 21 years should produce a generation which would not only have teeth worth preserving but would be accustomed to and would make full use of the service in later years. During this service dentists would collect much information about the teeth of the young and we would train many new dentists in *orthodontics* and *pedodontics* as well.

5. *Standard of Dental Practice*—The dental practice in our country to-day is limited to the cities and few towns only, the rural areas being completely neglected. Even so, the local practice is mainly confined to scraping, filling of carious teeth, extraction and dentures. It is not yet concerned with preventive dentistry, dental health education, orthodontics, etc. The results, according to Patel (1948), is that the present achievements of dentistry in India are not adequate enough to have created a "reputation" for the dental profession or won for it public approbation or liberal endowments for its advancements. As a matter of fact, dentistry in medicine plays the part of a health-promoting agency and the mission of the dentists would be health restoration. While mere restoration of the mouth to a state of health with the aid of various dental operations or replacements may be an excellent procedure by itself, it cannot be considered as having accomplished its mission, unless supplemented by an education of the patient on the relationship the diseased teeth bear towards general physical welfare and on the role of dental care in the appreciation of sound health. It may be that the real reason for such defects lie primarily on the teaching of dentistry in which these subjects do not either find a place in the curriculum or are not sufficiently stressed in the ordinary dental course available here. The remedy, therefore, is essentially an improvement of the standard of dental education and organisation. Not only all the existing colleges should be immediately raised to the level of a University standard and many more instituted in various centres but the teaching should have a definite public health bias; facilities should also be provided for post-graduate dental course, research and field surveys. The subject has been further discussed later. Strict application of the suitable Dental Act and stimulation of the Dental Association to maintain high professional standard and spirit of service to mankind will go a long way to build up the necessary public esteem and reputation.

The senior dental officers of the service should be readily accessible to the local dental practitioners for consultation and assistance. The latter may be encouraged to attend the hospitals to see and show cases of interest. This kind of co-operation should be assisted by regular clinical meetings and discussions at the hospitals by invitation of the staff or by offering clinical assistantship to them for short periods in special departments. Thus a natural relationship would develop between the practitioners and the hospital services leading to a steady improvement of the standards of both the services.

6. *Public Understanding and Popularity of Service*—The public is partially apathetic to the dental profession although it cannot be denied that there exists a strong traditional method of dental care in many parts of the country. This is because India, at one time, was the cradle of medical science including dentistry and excelled in the practice of personal hygiene which included rigid dental health practices as described in Manu's Health Laws. It is therefore not a new development in India although much that was achieved in the past has been lost due to obscurity and non-practice, and progress in this particular subject seems to have ceased after Sushruta and Charaka, except in dental mechanics.* It is indeed amazing to find that even as far back as 1500 B.C. the description of dental ailments and their surgical and drug treatment including those of caries (*Krimidanta*) and Pyorrhœa alveolaris (*Upasuka*) compares well with modern knowledge. What the present generation has lost, besides the dental hygienic practices, is the importance of early treatment of the teeth or gum affections and a visit to a dentist is avoided whenever or as long as possible.

Two important basic reasons for this neglect may be suggested, *viz.*, (1) want of confidence in certain dental treatment due to previous unpleasant experience or from hearsay; and (2) cost of treatment. The latter is perhaps the more important cause, at least for the poorer section of the public. As a matter of fact, even the dentists admit that it is mostly the richer section of the public that avails of the services of dentists in cities and towns whereas the villagers have either no treatment or are left to the mercy of quacks. It is needless to mention that quackery in dentistry has caused more harm than good to the public as well as to the profession and where the quacks and foreign mechanics (*e.g.*, Chinese) assume the role of dental surgeons and treat the public wihout any scientific knowledge what safety of public health could be expected? On the other hand, the fees charged by the qualified dentists particularly those who are foreign trained, are so high that they remain beyond the reach

*It is mentioned in the Elphinstone's History of India that in 1194 A.D. the Rathor Raja, Jaichand, was recognised by his false teeth, probably made of ivory.

of the ordinary public who are automatically driven to the quacks to obtain whatever relief is available. Thus, almost a vicious circle has been produced which is detrimental to the reputation of the dental profession as well as to the public understanding of the services rendered. But once the dental service is organised under the Government or municipality or even under some voluntary organisation the public appreciation is almost assured.

The Tentatiive Plan

In view of the discussion made above, a three-pronged attack of the problem is suggested., *viz.*, (A) Introduction of dental services; (B) Improvement of dental education and (C) Organisation of dental health education.

..A. Introduction of Dental Services:

(a) *Hospital Dental Services*—It can be said with truth that except for a few teaching institutions and some hospitals in Bengal no dental services are at present provided, and that too, through honorary and part-time dentists. The dental treatment provided in these centres is of an emergency type and consists mainly of extraction and repair. In one or two institutions surgery of teeth and jaw bones are undertaken on a higher plane. On the whole, the position is so unsatisfactory that it is no longer defensible. It is therefore suggested that attempts should be made to develop a full-fledged dental department with full-time staff in all teaching institutions, some of which should also be fully equipped for postgraduate teaching in dental science. Similarly, a dental department should be created in all district and subdivisional hospitals under full-time paid dental surgeons with the necessary associated staff. Each of these departments will have certain jurisdiction within which dental services should be rendered to the public as well as to all existent schools, colleges, maternity and child welfare clinics and other Governmental and voluntary public institutions, arranging by turn, if necessary.

(b) *Local Authority Services*—In towns, particularly served by municipalities, the latter should provide dental services to the various institutions run by them.

(c) *Health Centre Dental Service*—The *rural health* centres including the *thana* centres provided by certain provinces should be the primary instrument of acquiring positive health. At present no private dental service is available there. It is proposed that the dental service may be made available to the few centres already started and others may also have it as and when they are established. Into those centres the dental service can be fitted with ease; indeed, in some respect it is more easily organised than the medical services, for dentistry involves so little domiciliary treatment. As a matter of fact, a single dentist, as a member of the health centre team will be able to cover a much bigger area than the medical men and he will take care of the school health and maternity and child-welfare dental services of the area without any difficulty. When such services are established the lack of contact between the dentist and the medical practitioner will disappear, and medicine will gain assistance in not only combating those diseases in which disorders of the mouth play a part but also in developing preventive medicine on a more thorough basis.

(d) *Children's Programme*—The importance of hospital services must not obscure the even more important requirements of the child health service. These must be given the "top priority". If for any reason development and improvement are not immediately practicable at the same time, the whole range of children's service must come first, dental caries being mainly a disease of early life. If preservation of natural teeth is what is desired and aspired the full dental service for children of school-going age is essential. But the dental services limited to school children would not be enough, as all children do not attend school. Therefore the latter should be reinforced by pre-school and adolescent services as well as by getting the other children to attend the local dental clinics. Except in the cities this service may be normally rendered by the dentists attached to the district and sub-divisional hospitals, municipal organisations or rural health centres, as suggested above. In Calcutta or in big towns like Howrah—special dental staff for preschool and school children, maternity clinics and for adolescents in the colleges should be employed in adequately distributed clinics. This arrangement may be done in collaboration with the Education Department. Special emphasis should, however, be laid on preventive dentistry and regular dental hygiene practice (dental health education).

(e) *Maternity and Child Welfare Dental Services*—Public health dental policy commences with the dental education and care and nutrition of the expectant mother. It is useful to arrange antenatal, toddlers' and dental clinics to be held simultaneously so that patients may be referred immediately for examination by the dental surgeon. He may have some fixed day in the month or fort-night to visit nursery schools, if any. Dental neglect during this early period of life leads to loss of teeth and other unnecessary troubles. It has already been suggested that the dental services for this group should ordinarily be catered by the dentists attached to local hospitals or various other centres except in cities for which a separate and independent organisation may be needed.

(f) *Dental Service for Industrial and Factory Workers*—Regular dental inspection and treatment by full or part-time dentists or dental hygienists should be arranged as a part of the medical service ordinarily provided for the industrial or factory workers. Serious cases may be referred to the consultant dental surgeon. Such services should be the concern of the industrialist or the factory organisers. If health insurance is introduced compulsorily or on voluntary basis dental service should constitute a part of the health insurance service. In any case, the service should be free except for injectibles and dentures, etc.

(g) *Travelling Dental Clinic*—For places which fall far beyond any health centres or even a dispensary

and for undeveloped areas travelling dental clinic, stopping at each centre for a short while, may be extremely helpful. As a matter of fact the dental clinic may only be a part of a travelling dispensary in which other special services like the Eye, E.N.T. Skin, V.D., Tuberculosis, Leprosy, etc. may be included. Such a dispensary or travelling clinic may be a part of the district or subdivisional organisations.

(h) *Organisation and Administration of the Proposed Services*—Dentistry must be considered as a part of the Health Services and its administration must follow the lines of the General Health Service of the country and should therefore be organised by the Government as one of its integral part. It should consist of two categories of personnel—Senior and Junior. The dental surgeons will be placed in the senior and the dental hygienists and mechanics in the junior category. The dental surgeons must be on equal footing with other doctors or specialists in the service. The junior staff will, however, belong to a subordinate cadre. While the main control will rest with the Director of Health Services directly or through a Statutory Staff Committee the contingent staff may be ordinarily placed under an Assistant Director,—a surgeon-dentist, in the Provincial Health Directorate.

It is essential that the highest paid posts should not be administrative and as far as possible the number of purely administrative staff should not be large. On the whole, the administrative structure must be such that democratic control in the interest of the patient does not lead to lay interference in clinical and technical matters and yet the importance of his relationship to preventive medicine must ensure the closest alliance with his medical colleagues. It is high time that the relationship between the medical and dental services should be fully appreciated because of the interdependence of the two professions which may be called upon to co-operate with each other for the maintenance of health and providing relief in all its fullness. In fact, many of the medical graduates who have specialised in dentistry will then be tempted, along with the other dentists, to enter into the regular health service.

Except the services organised under a local authority, municipality an industrial concern, factory or private hospital the rest of the dental services mentioned above should be under the direct control of the Health Directorate of the Government and should be managed in the same way as other constituents of the General Health Service. In case a dental service is organised as a part of Health Insurance Scheme the control should rest with the authorities vested with the control of the entire scheme.

B. Improvement of Dental Education:

(a) *Personnel*—If a dental service is to materialize the first and the essential need is to increase the number of qualified dentists, for which the educational facilities must be enormously expanded and the standard of the available institutions raised immediately to the University level. Apart from the increase in the number of training institutions it is inevitable that the development of a national dental service in which over-increasing attention would be paid to prevention of disease should lead to changes in the education of the dentists. The curriculum must be so revised that a firmer grounding in the basic sciences and in the biological foundation of medicine is given to the dental student and the actual dental training should have a public health, preventive and social bias. Three classes of students may be trained as suggested by the Bhore Committee, *viz.*, (1) Dental Surgeon, (2) Dental Hygienist and (3) Dental Mechanic. A fourth class of workers, *viz.*, dental technician, has slowly achieved recognition and importance in other countries, mainly for prosthetic service which, for the time being, may be vested with the dental mechanics. With the expansion of the service a need may be felt for the dental technician who would be assistant to the dental surgeon and also act for liaison between the latter and the mechanic.

The work of the *hygienist* would comprise of the actual scaling, cleaning and polishing teeth, chart examination of the mouth, preparation of the mouth for operation, simple extraction and so on. But his (or her) main utility would be to give instruction in the *dental prophylaxis, i.e.*, cleaning and care of the teeth and mouth. The dental hygienist who knows how to teach can materially raise the standard of dental care in school children and industrial employees through dental clinics and lecture demonstrations and by talks to the mothers in welfare centres. In many schools in New York state education in dental health is carried out by the dental hygienist who is also a special teacher in the preventive health service. She carries out periodical dental examinations and charting twice during the school year. But her work is conducted under the supervision of a dentist.

(b) *Training Facilities*—In view of the existing circumstances and dearth of dental teachers the responsibility of training Dental Suregons may be conjointly carried out by the existing Medical and Dental Colleges, while the training of hygienists and mechanics may be entirely managed by the Dental Colleges. In fact, if the new Dental Colleges are built as a special wing of the existing Medical Colleges with Senior Dental Professors as full time staff, the rest of the training facilities may be economically managed with the help of the regular staff of those colleges. The Bhore Committee have also made similar recommendations. While the course for the Dental Surgeon may be limited to four years, the same for the hygienist and mechanics should not exceed two years. A separate course of two years' duration has been recommended by the Bhore Committee for those medical graduates who wish to qualify for an additional degree in Dentistry. It is suggested that the second year of this course should be spent mainly to gain hospital and health centre experiences before obtaining the Diploma or registration. A similar course for dentists might be introduced.

(c) *Postgraduate Dental Education*—Since there is a grave shortage of qualified dentists it is needless to say that trained dental teachers and specialists for the hospital and health centre services would be still more difficult to obtain. Facilities should therefore be provided for postgraduate dental education by the university to encourage the dental graduates to take higher degree (M.D.S.). This will help considerably in promoting dental research and in producing and keeping a continuous flow of well-trained teachers.

(d) *Research in Dentistry*—All progressive sciences including the medical science is under continuous evolution through research, and Dentistry is no exception. The service must therefore provide facilities for research—clinical, laboratory and field. The last may be organised through hospitals and health centres so that all types of dental workers may have the facilities to work on problems that interest them. Dentists attached to the School Health, Rural or Maternity Health Centre services should be encouraged to take part in clinical investigations and in the appraisement of dental health (statistical). This will necessitate a close link with the teaching of Dentistry and, as with Medicine, all sources of suitable teaching material must be utilised. All the specialists in Dentistry attached to hospitals who have teaching abilities should also be utilised in the training of students. The teachers of medical students have also a part to play in the education of dentists and the unification of the services would make this simple. Given sound educational background and adequate grants there will be no dearth of research workers.

(e) *Curriculum*—While it is not the purpose here to discuss anything about the curriculum which should be relegated to a special committee or the Faculty of Dentistry in the University or to a Dental Board attached to the Indian Medical Council for unification of the standard, certain lines of reforms are only offered here below for the undergraduate dental education:

(1) More realistic and practical teaching of general and dental anatomy and physiology. This should improve the general standards of education of dental students and help to prevent the present tendency for isolation of various branches of dentistry.

(2) Training in manual dexterity should consist of those operations which the student will later have to perform in the mouth or of those which he will actually do himself, *e.g.*, making of the more complicated regulation appliances. It is really waste of time for him to spend two years on prosthetics which should be the domain of the dental mechanic.

(3) More time should be spent on children's dentistry including orthodontics, and there should be an individual examination in the latter subject.

(4) A full-fledged Pathology and Bacteriology Department should be maintained where special dental bacteriological research on subjects like caries, pyorrhœa and so on may be carried out by the staff as well as students (Postgraduate).

(5) *Development of Preventive Dentistry*—It should be the serious concern of every right-thinking dentist to appraise himself fully with the benefits of Preventive Dentistry and the importance of emphasizing the essentials of oral health and damages caused by neglected teeth and the efficacy of early measure etc. to his patients. Teaching of oral hygiene should also form a routine precedure in School Health Dental Service. Moreover, with the increase of knowledge various preventive measures have now been advocated *e.g.*, Hvatt's prophylactic odontotomy, flourine mouth wash, flourine treatment of water, orthodontics and so on. A new section of Preventive Dentistry may therefore be opened to adequately deal with the following aspects:

(*i*) Historical development of dentistry.

(*ii*) Relationship of general health and nutrition to dental diseases and *vice versa*.

(*iii*) Oral hygiene and prophylactic measures including orthodontics.

(*iv*) Dental Health Education.

(*v*) Field surveys of dental problems (with facilities for students' participation during senior years).

(*vi*) Research.

(6) The teaching staff should consist of half and full time men who have time for research and investigation. This will inevitably keep them upto-date in the subject.

(7) Periodical clinico-dental conferences should be held in which both staff (including the pathologist) and students should participate in the demonstration and discussion of interesting cases, pieces of research or new developments on any subject from the literature.

(8) In order to fit the student for a professional career in an Integrated Health Service, all Dental Schools should be closely related to the academic life of a Medical School or University and the students should gain cartain amount of hospital and rural health center experiences before registration or obtaining the diploma (*cf.*, interneship of medical students).

C. Dental Health Education:

To initiate the people to adopt dental hygiene as a daily health practice and to disseminate among them the importance and value of dental service in the control and prevention of dental disease the work in the clinic or surgery must be accompanied by efficient system of education in the principles of prevention. The system must cater for both children and parents as well as teachers, and must employ all the known methods of disseminating information in as attractive form as possible. It is the inculcation of health habits and the removal of fear of dental treatment which are the two principles of preventive dentistry. In short, the dental health depends upon the diet, the hygiene

of the mouth, the general health and the standard of dentistry enjoyed throughout life. The best propaganda, however, is efficient, painless, conservative treatment. It would indeed be very unsatisfactory to provide dental service which failed to be fully utilised because of the ignorance of the people about dental health and dental service. It may be worthwhile to mention here that the *dental health education* is only a part of the *general health education* but if quick results are to be obtained in *dental health education* in particular, special efforts should be directed along the following lines:

(*i*) Dental Health Education should be taught as a part of Preventive Dentistry, as already proposed. The primary need therefore is to define in general terms a syllabus of teaching in 'oral hygiene' and the fullest possible use must be made of the more modern apparatus and methods for teaching.

(*ii*) Probably the most efficacious method is by individual contact with the patients and the parents, and herein lies one of the most effective spheres of activity for the dental hygienist, with possibilities of saving much of the time of the dental health officer. In this respect, therefore, the dental service station should form the centre wherefrom the dissemination of knowledge pertaining to the care of the teeth should be effectively broadcast. A missionary work of this nature may find quick response from the patients who always feel grateful for all useful suggestions and co-operation. Experience has, however, shown how resistant the public are to health propaganda and it may be necessary to wait for a new generations to grow up, educating it all the while, before a general appreciation of the dental service is achieved. Thus, the main services through which the education may be generally propagated are: (1) School dental service, (2) Maternity and child welfare dental service, (3) Industrial dental service and (4) Rural health centre dental clinics.

(*iii*) Private dental practitioners may also help considerably in the campaign of dental health education by exhibiting charts, posters, photographs and models, etc. in their own consultation chambers and explaining things to the patients or to his parents or relatives while the patient is in the chair. On the other hand, the tendency to frighten the patients into goading them to seek dental service would be a pernicious policy and should be scrupulously avoided.

(*iv*) The financial resources available hitherto for public education have been extremely inadequate and the service has therefore been meagre and disappointing. The Government should as such find some funds to promote dental health education as a part of the dental health servce.

As a policy of public dental education the following points from the "Teviot Report" (1946) may also be mentioned:

"First, and by far the most important, will be quality of treatment given to the public.

Secondly, the health centre offers (*e.g.*, by means of lectures, films) great opportunities for dental health education."

The local education authorities' duty to encourage children to accept treatment "can be more easily fulfilled if lessons include a rational teaching of the need for regular dental care.

Dental health education should be one of the essential parts of the advice given at Maternity and Child Welfare Clinics. Material for publicity (*e.g.*, films, posters) should be supplied from central sources but they can never achieve success without the support of local and personal effort.

Dental health education should deal with questions of diet and dental hygiene as well as stressing the need for regular inspection and treatment."

SUMMARY

Dentistry must be an essential part of any comprehensive health service and should be available to every citizen. But since the extreme dearth of qualified dentists in the country and the present day difficulties in the financial position of the Government would not permit introduction of dental health service on a country-wide scale, 'an introductory' service may be initiated at the outset with a priority given to those sections, particularly the young, in whom dental care is most urgent and important. A three-pronged attack of the problem is suggested, namely, (1) Introduction of dental service to certain sections; (2) Improvement of dental education; and (3) Organisation of dental health education.

(1) The dental service may be introduced through hospitals, rural health centres, schools, industrial, maternal and child health centres and travelling dental clinic. The service, composed of two cadres of men, *viz.*, (*i*) Senior—consisting of dental surgeons and specialists and (*ii*) Junior—consisting of hygienists and mechanics, should be an integral part of the general health service, and terms and conditions of the officers should be on the same basis as those of the existing contingents.

(2) The educational standard should be raised to the University level and the number of institutions increased to meet the great shortage of dentists in the country. The students should be given the same foundations as that of medical students and the teaching should be modified to have preventive dentistry, dental surveys, research and postgraduate course as common features of training. The profession should be open to the most likely entrants from the whole population.

(3) Dental health education should be emphasized during teaching and actually carried out through the dental services at both rural and urban clinics and through school, maternal, industrial and other health services or as a part of general health education, because the service is likely to fail without the public understanding and acceptance. Also, if success is to

be attained the dentists (practising or in service), the medical practitioners and the public all should co-operate with one another in the health education campaign.

In short "the aim of the dental service should be the maintenance of highest possible standard of dental fitness, as a part of the general scheme of maintaining the public in a state of optimum health."

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III

RIGHT LIVING IS LIFE

K. L. VARMA,

Medical Officer, Aliganj (Etah).

Man, the most intelligent of all animals, should know how to live and enjoy life to its fullest.

The universe is running on the dual principle of spirit and matter. Spirit has a character of motion and it requires a physical substance or a material form which it will animate and through which it will manifest itself.

Dr. Manas of New York has described that man is composed of four physical bodies, *viz.*, physical, etheric, emotional and mental. What I mean to say here is that these are the four factors necessary for keeping one's life happy, provided they are best understood and provided proper consideration is given to them.

So long as the soul is able to control them and supply them the proper food to keep them harmoniously functioning, the result is health, beauty, vigour, longevity, happiness and success in life. All sickness, misery, unhappiness and early death are the results of the violation of this fundamental law of life.

To keep oneself alive, one needs food. In other words, physical body needs food including proteins, starches, carbohydrates, minerals and vitamins to build up the worn-out cells of the body during its daily routine of work. Hence we require proper food in the right proportion as given in the charts of dietetics.

The etheric body requires the proper amount of air to retain its vital force. Hence we should consume more oxygen in open air and should always try to take fresh air by taking morning walk and living in well-ventilated houses.

The emotional and mental bodies require emotional and mental activities of the proper, constructive type to keep them going. The brain is supposed to be the king of the body. Being the centre of nerves, or say of electric wires of the body, it needs care for its proper functioning. It needs stimulation; but over-stimulation, by anger, anxiety, unnecessary brooding over things, and worrying with unlimited desires or thoughts, tells on its physical cells, and causes hysteria, neurasthenia, and other mental diseases with hyperpiesis (high blood pressure), etc. One should always remain happy and give oneself to pleasure thinking. And contentment should always be sought by every individual, as it is the key to happiness in the world.

Sexual activity has effect on the nervous matter of the brain. Hence it is very much advisable that one should have only limited and fixed hours for it.

Unless man is wise enough to give these bodies their proper food, as suggested above, and is able to direct them for a definite and useful purpose, he will lose control over them. And in that case, these four bodies will start feeding themselves on destructive emotions and thoughts.

In our society to-day the majority of the people have lost control over their body vesicles, and the result is their present intemperate, disharmonious, sick and unhappy existence. As most of our actions in life are but a habit, good or bad as the case may be, every one can build good habits in life, if he so desires.

Perfect life is the result of the will power of the soul of man to control and keep in harmony his four bodies, and the ability to express the knowledge and wisdom of his soul through them.

I am ashamed of my own self; for, I am always sick myself. This is so because my primary life has been most irregular. I have seen Dr. Shelton's review on hygiene. He says, illness is a disgrace. We should all recognize that it is as much a shame and a disgrace to be ill as to be drunk. There are many people in this fair land of ours who are ashamed to be ill, for they recognize that they have brought about their illness by the same kind of indulgences and indiscretions as causes drunkenness. But people like these who are enlightened about the causes of disease and are ashamed of illnesses are not found in the higher ranks of the society.

In the end, I would like my readers not to give only a philosophical consideration to this article of mine. I have presented here the simple principles for a happy life.

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CASE NOTES

AUREOMYCIN IN TYPHOID FEVER

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Two cases of typhoid fever were treated with aureomycin at the K. G. M. Hospital. The diagnosis was made by isolating the *S. typhi* on blood culture.

Both were Hindus, male and young adults. The treatment was started on the 12th day in the first case and on the 13th day in the second. The dose in the first case was 2 capsules 6-hrly. for five days and 1 capsule 6-hrly. for 3·5 days, while in the second case 1 capsule 2-hrly. for 3 days, then 1 capsule 4-hrly. for 6 days and 1 capsule 6-hrly. for another six days. The total dose in the first case was 13·5 gms. over a period of 8·5 days and in the second 16 gms., over a period of 12 days.

Nothing seemed to happen in the first 24-48 hrs., after which temperature began to settle down by lysis and touched normal on the 5th day and 8th day respectively. The temperature remained normal throughout the convalescence in the first case, while there was a secondary rise in the other but it settled within 12 hrs. and remained normal till his death. General condition improved rapidly in the first case and more slowly in the second. Lung signs in both cases showed a marked amelioration. The duration of fever after institution of aureomycin was 4·5 and 7 days respectively. The toxic symptom attributable to aureomycin was diarrhœa, which was severe in the second case.

Relapse occurred in the first case after an afebrile period of 20 days. Blood culture again yielded *S. typhi*, and the patient was again put on aureomycin. 12 gms. were given over a period of six days. It was not found so effective in the relapse as in the initial attack.

CONCLUSION

1. The only conclusion that we can draw from these two cases is that aureomycin does not produce a dramatic response like chloromycetin.

2. It did exert some beneficial effect in our cases and made the course of illness milder than it would have been otherwise.

3. Relapse occurred in one, after an afebrile period of 20 days. The drug was not found so effective in the relapse as in the initial attack.

4. Blood culture became sterile 48 hours after the treatment was started, in both the cases.

ASCARIS LUMBRICOIDES IN THE COMMON BILE DUCT

S. M. GHOSH, M.B., F.R.C.S. (ENG.),

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Presence of Ascaris lumbricoides in the biliary passage or liver is not a common condition, but the worms are occasionally encountered there on the operation table or in the post-mortem room.

John Davy described a case with several abscesses in the liver caused by ascaris in 1862. Since then a fairly large number of cases have been reported by various authors from time to time. The cases in the literature mainly fall into two groups. A fair number of cases have been reported where the patient came in with signs and symptoms of inflammatory condition of the biliary passage with or without evidence of obstruction and ascaris was found in the biliary passage either on the operation table or on post-mortem examination. Abscesses of the liver form the next group. These abscess cavities contained ascaris associated with bacterial infection. Most cases of this group were discovered on the post-mortem table.

Occasionally cases have been reported which do not belong to either of these two groups. Tirumurti (1913) described the post-mortem examination report of a girl who died of kala-azar where five round worms were present in the common bile duct. She had no symptoms relating to biliary passage.

A case has been described by Le Roy (1913) which was diagnosed as gastric ulcer but on operation a stone and two ascaris were removed from a much distended common bile duct.

A case of round worm in the common bile duct causing symptoms of gall-bladder disease came under my care, the report of which is given below:

CASE REPORT

Mrs. R. K., a Mohamedan lady, aged 35 years, was admitted in the Campbell Hospital under my care on 25-6-48 complaining of occasional attacks of colicky pain in the right hypochondrium associated with fever for last 15 years. The pain which was of the nature of biliary colic was accompanied with vomiting and was of short duration. Lately, the frequency of the attacks increased to a great extent. She never had any jaundice. She was admitted in the hospital during quiescence.

On examination she was found to be of average build. She looked very anæmic. The right hypochondriac region was tender. The gall bladder was palpable. No other abnormality was detected.

Laboratory Reports: *Stool*—Colour paler than normal; ova of ascaris present in fair numbers. *Blood:* Hb.—50 per cent, R.B.C.—2,750,000 per cmm.

A clinical diagnosis of cholelithiasis with chlecystitis was made and treatment to improve the blood condition was undertaken. Cholecystography was not done.

An operation was performed under gas oxygen anæsthesia on 6-8-48. The gall bladder was found to be enlarged, whitish in colour and the wall thicker than normal. No stones were palpable. The common bile duct was dilated and some solid material were palpated inside. On opening the duct it was found to contain biliary mud and two dead adult round worms. The worms and the biliary mud were removed and the duct was drained. The patency of the duct was verified. Cholecystectomy was not done.

Bile culture showed presence of *B. coli.*

Recovery was uneventful and the patient was discharged on 29-8-48. A course of anthelmintic treatment was given.

A follow-up for two years after operation found her healthy.

Discussion

Ascaris in the intestine is a fairly common condition in the tropical countries but their presence in the biliary passage is not so frequent. As to their mode of entry into the biliary system the opinion is not uniform. The worm may pass into the duct from the duodenum through the ampulla of Vater. The ampulla might have been previously dilated by the passage of a stone. Campo, however, thinks that the worm in the larval stage is carried by the portal blood like the tinea echinococcus and settles in the liver. His arguments in favour of this theory are the absence of obstructive symptoms in most of the cases and the abscesses in the liver containing adult worm without their presence in the common bile duct. Hartmann supports the larval theory.

During their progress through the biliary system the ascaris may facilitate an invasion by the bacteria which causes cholangitis and multiple abscesses in the liver.

In rare instances gall-stones and worms have been found together. Merten described 5 cases in a series of 48 cases of ascaris in the biliary passage. Hanot (1896) regarded cholelithiasis as due to the infective agency of the worms.

Correct diagnosis before operation is certainly difficult. Chin (1933) thinks that severe epigastric pain with a feeling of distension in a patient whose stool shows ova of ascaris is suggestive of the condition. I should think that it is difficult to lay too much stress on this.

Summary

(1) A case of ascaris in the common bile duct with the symptoms of cholelithiasis and cholecystitis is described. The presence of ascaris in the common bile duct did not produce any obstructive symptoms.

(2) Probably the presence of the ascaris formed the deposition of biliary muds. No stones were present in the gall bladder but it showed evidence of chronic inflammation.

(3) Literature on the subject is reviewed.

Acknowledgment

I am grateful to Dr. A. K. Dutta Gupta, M.B., D.T.M., Principal & Superintendent, Nilratan Sircar Medical College and Hospitals for allowing me to utilise the case record, to Dr. S. Pramanik, my Senior House Surgeon who assisted me in compiling the references, and to Dr. Anjali Mukherjee, Junior Surgeon, Medical College Hospitals for her kind assistance.

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(Continued from Col. 1, page 322)

diet may be attributable in large part to the lipotropic factors which the diet contains.

A close relationship has been found to exist between the fat content of the liver and its progression to cirrhosis. The exact mechanism by which the fatty infiltration of liver leads to cirrhosis is not known. There is evidence to suggest that it may be by way of impairment of intralobular circulation. Various animal experiments suggest that the level of metabolic activity of liver may be an important factor in progression to liver cirrhosis. A degree of vascular impairment which may prove fatal to liver cells at one level of metabolic activity may prove adequate if the metabolic activity is at a lower level. On these grounds it is suggested that for effective treatment of cirrhosis, the metabolic activity of liver should be reduced as far as practicable. Protein in large quantities, by stimulating the metabolism, may probably neutralize the good effects gained by its constituent lipotropic amino acids. A moderate or low protein diet with added lipotropic agents like methionine and choline may thus prove to be very effective in treatment of liver cirrhosis.

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JOURNAL OF THE

INDIAN MEDICAL ASSOCIATION

CALCUTTA, JUNE, 1951

SURGERY IN CONGENITAL HEART DISEASE

Till recent years congenital heart disease was purely a domain of the physician, and to a child suffering from the disease he could only hold out the hope of a life-span of a few years of restricted activity. But brilliant results achieved by surgery in congenital heart disease have opened up a new line of treatment which was a few years ago beyond the dream of a medical man. A new interest in the diagnosis of the different varieties of congenital heart disease has now been created amongst the clinicians, as an accurate diagnosis is required before surgery can hope to achieve any result.

For the new developments in cardiac surgery we must thank Dr. Maude Abbott whose pioneer work of classifying 1,000 cases of autopsy was the foundation on which rested further work on the subject. Dr. Helen B. Taussig took up the work where Abbott left. In the words of Park[1] "She (Taussig) has done for the clinician what Dr. Maude Abbott did for the pathologist, namely, made most of the malformations of the heart understandable and accessible."

As soon as it became evident that it is possible to diagnose accurately the anatomical basis of the malformation of the heart, the thought turned on to the methods of amelioration of symptoms. As the pathological nature of the disease is nothing but a mechanical deviation from normal anatomy, a mechanical aid, *viz.*, surgery came to the rescue. Here also Taussig led the way. Blalock and Taussig[2] reported in 1945 the surgical treatment of congenital pulmonary stenosis. They found that the chief cause of incapacity of the patient with pulmonary stenosis was the lack of blood supply to the lungs and if more blood could be sent to the lungs, cyanosis could be relieved. They, therefore, brought down a branch of the aorta, generally the subclavian artery and established an anastomosis between this vessel and the right or left pulmonary artery. The actual results were far more spectacular than their expectation. The cyanosis was relieved, the oxygen saturation of the arterial blood was increased and the exercise tolerance became much nearer the normal than before. The operation has now been standardised and is done throughout the whole world and in Blalock clinic alone more than 700 operations have been done up till now.

Potts, Smith and Gibson[3] suggested a modification of Taussig-Blalock technique in 1946. They made a direct anastomosis between the aorta and a pulmonary artery. And to make this possible they invented a clamp which encircles the aorta and merely pinches off a lip so that while the anastomosis is effected, blood-flow through the aorta is not stopped.

While the American workers were trying to deal with the more gross cardiac malformations, Crafoord[4] in Scandinavia was experimenting with the surgery of the coarctation of the aorta. In 1945, he reported with Nylin the first successful correction of the aorta by surgery. The operation consists in excising the constricting portion of the aorta and then making an end to end anastomosis. This malformation of the aorta gives rise to serious elevation of blood pressure with consequent complications. Hence this operation became an epochmaking advancement in a disease where the physican used to feel his erudition useless.

Patent ductus arteriosus is another congenital anomaly which has been tackled successfully by surgery. During fœtal life the ductus diverts the greater part of the blood from the pulmonary artery to the aorta. At birth, its function ceases with the expansion of the lungs and anatomic closure is usually completed within a few months. But the patency of the ductus is not rare. The most fatal complication of this type of anomaly is subacute bacterial endocarditis and a closure of the ductus is a preventive measure against this almost fatal disease. Gross and Hubbard[5] first ligated a patent ductus arteriosus in 1939. Their pioneer work was followed by many surgeons of the world. In a number of cases, there had been recanalisation of the ductus after ligation, hence some surgeons prefer serving the ductus to ligating it.

One of the most important members of the surgical team is the anæsthetist. Without his expert aid chest surgery may not be possible. The intratracheal route with cyclopropane as the anæsthetic agent has been preferred by many.

In India also a number of chest surgeons have taken up cardiac surgery. We publish in this issue of the Journal a report of two cases of patent ductus arteriosus successfully treated surgically by Betts and Thomas[6] of Vellore, South India. It is hoped that this article will encourage medical men in India to seriously consider surgery as a method of treatment for congenital heart disease.

MEDICAL STUDENTS ORGANISATION

We have learnt with great satisfaction that the would-be members of the medical profession met in their first All-India Conference at Madras in January-February, 1951 to evolve, amongst other things, a comprehensive programme for the general well-being of the medical students and to equip themselves with the right material in order to take their legitimate share in the service of the suffering masses of our country.

[1] Park, E. A.—Preface, Congenital Malformations of the Heart by Taussig.

[2] Blalock A and Taussig, H. B.—*J. A. M. A.*, **128**, 189, 1945.

[3] Potts, W. J., Smith, S. and Gibson, S.—*J. A. M. A.*, **132**, 627, 1946.

[4] Crafoord, C. and Nylin, G.—*J. Thoracic Surg.*, **14**, 347, 1945.

[5] Gross, R. E. and Hubbard, J. P.—*J.A.M.A.*, **112**, 729, 1939.

[6] Betts Reeve, H. and Thomas, T.—*J. Indian M. A.*, **20**, 309, 1951.

It is very heartening to observe that the lead which the elder members of the medical profession in this province gave in the past in launching reforms in the field of medical education and registration have of late been followed up by the present generation of students by inviting their first conference on an all-India basis.

Madras is noted for its reforms as it was the first to introduce the two years' condensed M.B. course for medical licentiates which is now followed all over the country, set up a minimum period of 5 years as the course of medical studies aiming ultimately to do away with the school type of education, and amended the Medical Registration Act to have joint electorate with a majority of elected members and an elected president. It was really encouraging that the youngsters also could imbibe the organising talents of their elders in getting the future hopefuls of the profession from different parts of India assembled there. It was also very interesting to observe that they invited one of the very able leaders of the Indian Medical Association in the person of Dr. Chamanlal Mehta to inaugurate the session. In this also the organisers displayed their profound farsight in establishing the much desired liaison between the organised profession and the student community. Dr. Mehta being an obstetrician of repute did not hesitate to respond to the call of our younger friends who, though not suffering from labour pain yet needed the services of an accomplished accoucheur for the safe delivery of their baby All-India organisation, the result of the consummation of the organisational efforts of the students' fraternity of India.

It augurs very well for the future of this newly formed organisation of the students that they have kept politics outside their arena. Every day we are noticing too much of politics in almost every walk of life and emergence of parties and platforms, not so much to help the common man and woman to come out of the rut they are still plunged in, but to create berths of political prestige and possibly also of power for themselves.

We note with relief that our young friends have taken a realistic view in deciding to eschew politics from their realm and work up to improve their educational standard, both theoretical and practical, and bring about the same uniformity all over the country. We are confident that they will realize that in the new order of things that has been introduced in our country the poor, ignorant and suffering masses living in the rural and remote areas where communications and other modern facilities of regulated life are non-existent and those who live in slums of cities, have got to be properly looked after. For this they will have to develop, even while having their education in big cities, a definite rural bias, and if they could make it a point to spend their vacations in the countryside with some of their professors to know at first-hand the health and other social problems of our people, probably with the assistance of Government agencies and other social workers, when they enter the profession as its fullfledged members, they will be able to raise the standard of the health of our people to a very high pedestal. There is hardly any dearth of medical aid in big cities and towns but in the rural areas there is a big vacuum in medical relief measures. It is high time that our future medicos change their outlook of ordering a comfortable life and decide to dedicate themselves to the service of our people who are most afflicted. We are confident, the inspiring inaugural address of our ex-President Dr. Mehta and other encouraging messages have helped the students to chalk out for them the right path which though not strewn with roses is not particularly full of thorns. We wish the students' organisation all success in its march for solidarity and progress. The Indian Medical Association, we feel, has a duty towards this new venture of our students who should get all encouragement and guidance from the seasoned and mature leaders of the profession in our organisation.

COMMONWEALTH MEDICAL CONFERENCE

That the medical profession does not recognise distinctions of race, colour or creed has been very aptly demonstrated by the recent decision of the British Medical Association in abandoning the proposed joint session of the B.M.A. and the South African Medical Association and the Conference of representatives of other Commonwealth countries at Johannesburg in South Africa, due to the inability of the Ministry of Health of Dr. Malan's Government to assure the avoidance of any conflict over the question of colour which is very much agitating that land. Although the South African Medical Association assured all help, the unfortunate non-committal attitude of the Government did not encourage the B.M.A., and very rightly too, to take the risk of assembling representatives of different Asian countries in Johannesburg. While fully sympathising with the South African Medical Association in their disappointment in this move we take this opportunity to place on record our appreciation of the fine gesture shown by the B.M.A. in abandoning the conference and further deciding to hold it in India in 1952 on the invitation of the Indian Medical Association.

It is really a pity when we have founded the World Medical Association under the United Nations Organisation, that issues are still raised on principles of colour and that the South African Government could not realise that the medical profession, true to its tradition established since practically the creation of society, does not recognise any bar of colour, race or territory. Our congratulations go to the able leadership demonstrated by the British Medical Association for rising to the occasion as they have not minced matters and subjected the profession to a condition of abject humiliation and surrender. While on this subject we must acknowledge the earnest desire of and notable attempts made by the members of the South African Medical Association who did all in their power to play the role of genuine hosts to all who intended to visit the place and urged the Government to remove restrictions. Our sympathies go to them in their profound disappointment which, we are confident, is shared by the entire medical profession all over the Commonwealth countries.

NOTES AND NEWS

MADRAS MEDICAL SERVICE

The Secretary to the Government of Madras has announced the following order (Order of Madras Government, No. 1252 Health, dated 9th April, 1951) :—

As there has been no licentiate course in medicine in this State from about 1939, only medical graduates will be available for appointment to posts of Civil Assistant Surgeons, Class II. It has also been found that the scales of pay for Civil Assistant Surgeons, Class II are not sufficiently attractive to graduates and that further in view of the large number of posts in both Classes I and II, much administrative inconvenience is caused. The Government have, therefore, decided that the cadres of Civil Assistant Surgeons, Classes I and II, should be unified to form a single cadre of Assistant Surgeons with effect from 1-4-1951 on the scale of pay of Rs. 150-25/2-400, medical graduates being allowed to start on Rs. 200/- in the scale.

The pay of every officer holding a post in the cadre of Civil Assistant Surgeons, Class II at the time of the unification of the cadre of Civil Assistant Surgeons, Classes I and II, shall be fixed in the scale of Rs. 150-25/2-400 at the stage next above his pay in the old scale of pay subject to the exercise of option allowed under Fundamental Rule 23. Medical graduates drawing pay less than Rs. 200/- per mensem shall be eligible to draw Rs. 200/- in the new scale of pay from 1-4-51. Officers who hold appointments in the cadre of Civil Assistant Surgeons, Class I at the time of the unification shall continue to draw the pay they are drawing in the existing scale of Rs. 200-25/2-400.

The Assistant Surgeons whether licentiates or graduates who have been entirely debarred from engaging themselves in private practice shall be allowed to draw a compensatory allowance of Rs. 80/- per mensem. The Assistant Surgeons whether licentiates or graduates whose private practice has been restricted to consulting practice shall be allowed to draw a compensatory allowance of Rs. 50/- per mensem.

ALL-INDIA PEDIATRIC CONFERENCE

Presiding over the Second All-India Pediatric Conference at Patna on 24th February, 1951 which was inaugurated by Sri M. S. Aney, Governor of Bihar, Dr. K. C. Chaudhuri of Calcutta emphasised that the task of the pediatricians today was not only to supervise the physical well-being of children, but also to regulate their social, intellectual and emotional training.

Dr. Chaudhuri said that of the total population of India 40 per cent were children under 15 years of age, forming a total of 135 millions. Distributed in age groups, 10 million were infants under one year, 42 million pre-school children between 1 and five years and 83,000,000 school-children between five and fifteen years: 80 per cent of this population were scattered in remote villages.

He attributed the reasons of non-availability of preventive and curative care to children compatible with the present-day standard of good medical practice to (1) the inability of parents to pay for good medical service; (2) absence of facilities or unwillingness to use them; (3) non-availability of service where many children lived, specially in rural areas; and (4) dearth of qualified physicians in the care of children.

He suggested the inclusion of basic training in pediatrics in under-graduate medical course and the increasing of the number of child welfare organisations in the country.

The strategy to meet the challenging problem of child health, Dr. Chaudhuri said, lay in three major methods of attack: (1) State aid in the form of hospitals and specialised medical service for every citizen; (2) Public health agencies in controlling comunicable diseases, maintenance of environmental sanitation and standard quality of food-stuffs and (3) Private pactice.

"In organising the services", he added, "a proper balance must be struck between these three means because one is indispensable to the other and adjustments have to be made in accordance with local conditions. The pattern will vary with medical, economic, educational and other needs of the people."

He emphasised that it could not be based only on mortality statistics, but should be based on evaluation of human values and relationships.

In conclusion, Dr. Chaudhuri said that their ultimate objective was to see that all children, irrespective of their race, creed or economic status, should receive the essential preventive, diagnostic and curative health services of high quality to enable them to grow into healthy and worthy citizens.

Dr. T. N. Banerjee, Chairman of the reception committee, strongly supported the claim of pediatrics to be developed as a specialised study in India. He also called upon the pediatricians to make a study of certain child diseases which were peculiar to this part of the country.

Dr. S. P. Bhattacharya, Secretary of the Indian Pediatric Society, explaining its aims and objects, announced that though the primary object was to promote child welfare, it had in view the idea of establishing a general institution for research work. He further disclosed that the society was affiliated to the International Pediatric Association at Zurich and represented at its last annual conference.

The Conference, attended by about 50 delegates from all over the country, as well as from East Pakistan and Afghanistan, held a series of symposia, on different specialised aspects of child medicine.

Dr. M. B. Prabhu of Madras and Dr. S. P. Bhattacharya have been elected President and Secretary respectively for the next session.—*U.P.I.*

ALL-INDIA MEDICAL STUDENTS' CONFERENCE

The following is an excerpt from the inaugural address by Dr. Chamanlal Mehta at the first All-India Medical Students' Conference held in Madras from 31st January to 3rd February, 1951:—

My young friends! You are entering this noble yet very arduous profession. I am sure, those who have preferred to enter the domain of this profession have done so after realising the responsibilities attached to this profession and have an aptitude for it.

There are three important stages in the life of the profession—studentship, apprenticeship and the professional career. The most important period is the stage through which you are passing. To be a successful physician, loved by the people and honoured by the profession, you will have to study not only medicine, but also to form good habits and build up your character.

Medical education is not completed by your passing the final examination. It continues throughout your life, whether you be in an institution or in private practice, whether you be in a city, town or countryside; your study of medicine has got to be kept on. Besides the study of your own cases, you have got to be in touch with the modern trends in medicine. You must replenish your knowledge and experience with those of others by reading journals and monographs.

Medical science is universal. It is neither a monopoly of any particular country, people, race or religion, nor is its growth restricted by patent rights. Modern medical science has reached its present stage by a process of evolution from times immemorial. It has progressed through the experiences of the East and the West, absorbing all that has stood the test of time and casting off what did not. This process of evolution will go on for ever. A true student of medicine is a citizen of the world. Whatever subject he may work on, the full knowledge cannot be reached without drawing on supplies from lands other than his own.

My future colleagues, when you have finished the period of studentship and have come out with colours from the portals of the universities, do not be in a hurry to enter an independent practice or service. To be a successful physician, there is still the study period of apprenticeship left for you. This study is very important. This is the 2nd stage in the life of a physician. It is the period which if properly utilised will enable you to make your future happy and prosperous. The knowledge and experience gained during this term will stand by you in good stead. This period should be utilised partly at your institution, partly with senior practitioners and in wandering through institutions of different lands. I realise how difficult it is to follow this advice under the present condition of the country and the existing social fibre and obligation, and yet I make bold to place my views before you in the expectation that at least a few amongst you will be able to act upon them.

When you have finished with your appreticeship, it is time to decide where you will settle down for practice. Will it be a city, a town or a rural area? Your choice will depend upon the ideals built during your student and apprentice periods and your social circumstances. A large portion of our rural areas are unfortunately not adequately developed as yet to attract the medical practitioners. "Go to the rural areas" has been the cry in the wilderness so far. Until the conditions improve, it is the duty of the State to provide medical service and if the conditions offered by the State are such as would enable a physician to meet his necessary requirements, I am sure medical practitioners would not hesitate to go and settle down in those areas. You will enjoy life and your work. There are plenty of scope there for increasing your knowledge of medicine and splendid opportunities for service to humanity.

Your Association should form a good link with the Indian Medical Association. The Indian Medical Association welcomes the formation of your Organisation and sends you their greetings and blessings. The First Congress of the Obstetrics and Gynæcological Society in India was held at Madras. The First Conference of the Surgeons' Association was inaugurated in Madras. It was Madras which invited the First Conference of the Association of Physicians in India. It is a proud day for the students of Madras that they are holding the first All-India Medical Students' Conference. My congratulations to you.

CORRESPONDENCE

(The Editor is not responsible for any views expressed by contributors)

TREATMENT OF HERPES ZOSTER

SIR,—I have read with interest the letter of Dr. S. K. Dutta, M.B.B.S., Calcutta, about treatment of Herpes Zoster with Colloidal Silver, published in your December, 1950 issue.

I give here my own experience in the treatment of Herpes Zoster. The most outstanding symptom for which the patient seeks relief is the intense burning sensation in the vesicles. Sometimes the pain is so much that injection of morphine and atropine has to be given. I give vitamin B_1 injection (usually bearing 100 mgm. per c.c.) intramuscularly once a day for 3 days. There is appreciable relief even after one injection and very marked relief after 2 injections. Usually the pain is completely relieved after the third injection. Vesicles, of course, take their usual course to dry up in about 12 to 15 days.

Dr. Dutta employs 6 injections of colloidal silver on alternate days to dry up the vesicles. There is nothing especial in it, as this (about 12 days) is the normal time for the vesicles to dry up. I think Berin is still cheaper and more easily available than colloidal silver. I am etc.,

Agra, 20-1-51. B. P. AGARWAL, M.B. B.S.

SIR,—In the December, 1950, issue of your journal, Dr. S. K. Dutta of Calcutta writes that in his experience, colloidal silver quickly controls pain and burning sensation of Herpes Zoster.

Recently I had occasion to use colloidal silver in a case of Herpes Zoster, in which aureomycin had no effect on the pain. Colloidal silver quickly relieved the pain and distress of the patient. I am describing the case below:

A maried woman of 30 years had herpetic eruptions over the middle of the left side of her chest and back along the distribution of the 5th and 6th thoracic spinal nerves. I saw her about 36 hours after the eruptions appeared. She had spent an almost sleepless night and was in severe distress due to painful burning sensation. Her temperature was slightly raised and the eruptions were typical. She had bilateral pulmonary tuberculosis for several years, but had not had any symptoms of activity for the last 3 or 4 years, and had been maintaining very satisfactory general health.

There were some creaky rales in the left lung which was dull at the base.

She was given Aureomycin, 500 mgm. every 4 hours for 48 hours. There was no appreciable effect on her pain and burning sensation, but the eruption showed signs of drying.

She was then given an injection of 2 c.c. of Colloidal Silver, intramuscularly. Within a few hours she was relieved considerably of her pain and distress. A second injection was given the next day and she made a quick recovery.

It is desirable that Colloidal Silver should be given a controlled trial. I am, etc.,

12/1-A, Hindusthan Park, Calcutta. 5-2-51. P. K. CHATTERJEE,

NUTRITION PROBLEM

SIR,—Through the columns of this journal of ours, I wish to draw the attention of all the colleagues towards the "Health Crisis" that is sure to develop as a result of the drastic cut in food ration recently enforced by the Government. The basic standard of the country's health is already at a low ebb since the last war due to economic difficulties. The amount of ration fixed by the Government of India is much below the basic physiological standard. The result of this diet will be nothing but slow starvation, flaring up of nutritional deficiency diseases and the much-dreaded tuberculosis. Its effect on the future generation will not go unmarked, as the gravid mothers will give birth to skin and bone dummies.

The present-day economic situation of the average citizen of our country does not permit supplementation of this ration cut with fruits, milk or allied substitute.

I, therefore, appeal to my colleagues to rise to this vital occasion and represent to the Government to raise the quantity of ration to the limit physiologically essential for human life. I am, etc.,

Mathura. 9-2-51. K. C. PATHAK, L.S.M.F.

PISUM SATIVUM (LIN)

SIR,—I shall deem it a great favour if you kindly publish the following note to clarify certain points about which I have received enquiries re. my article.

Pisum Sativum (Lin) (Matar Dal) is one of the most common cereals. The method of extraction is very simple. The seeds are washed dried and pulverized and strained to 60 mesh. It is then extracted either with alcohol or petroleum ether. The solvent is distilled off and the oil remains behind. The details of the study have been published in *Science & Culture*, Sept. 1949, and in *Calcutta Medical Journal*, Nov. 1950.

Further, this may be said that this is still in experimental stage. As for myself, I have no intention for any commercial enterprise. I am, etc.,

105, Vivekananda Rd., Calcutta. 19-3-51. S. N. SANYAL, B.SC., M.B.

AUTOPSY ACT

SIR,—A resolution for the Autopsy Act to secure dead bodies for pathological post-mortem examinations and dissections in Anatomy departments in medical colleges has been passed in various conferences. A mere passing of resolutions will not create interest amongst medical men, the public and Governments. The Sholapur Conference of the Indian Medical Association has reiterated the previous resolution with some modifications. Now it is for the members to make a regular propaganda among the public and through the press to remove notions which people hold with regard to autopsy on grounds of sentiment and religion. The co-ordinating branches in different States should take deputations to the Ministers for Health to

induce them to make the necessary legislation. It is desirable that members should very often write in local newspapers on this subject and hold talks with people. It must be remembered that much spade-work will have to be done before we finally achieve our object. I am, etc.,

Gole Colony, Nasik. P. S. GUPTE, M.B., B.S.
19-3-51.

DISTRIBUTION OF STREPTOMYCIN

SIR,—With reference to the correspondence by Dr. Raja Rao, "Distribution of Streptomycin", published in your Oct., 1950 issue, Vol. XX, No. 1, p. 28 I very much appreciate and endorse the views expressed by Dr. Rao.

It is undoubtedly true that the present-day general practitioners do not understand the seriousness and deleterious effects produced by the injudicious use of streptomycin, particularly in cases of tuberculosis of the lungs.

Dr. Rao has confined his views towards the treatment of tuberculosis only and unfortunately ignored to mention the invaluable use of streptomycin in several other diseases such as plague, peritonitis, pneumonia, gonorrhœa, bacilluria, infantile cirrhosis of the liver, etc.

Plague and peritonitis are diseases of serious nature that require an immediate action. It would be criminal to withhold streptomycin and wait till a permit is issued by an "Assessor" who is almost always miles away from rural towns and villages and is not easily accessible. It usually takes days if not weeks before one can expect a reply by post. It is therefore obvious that owing to the prolonged delay, most of the patients may not live to get the benefits of streptomycin.

It is suggested that the Government of Madras be pleased to amend the rules and permit every G.P. to freely use streptomycin in all such cases of emergencies without obtaining the previous sanction of the "Assessor". I am, etc.

'Vaniyambati', N. A. Dist., South India. M. ABDULLA.

DIABETES WITH LOW URINARY SUGAR BUT HIGH BLOOD SUGAR

SIR,—I am recording below some laboratory findings of cases of which I know what kind of treatment is being tried. I have given fasting figures for both blood and urine glucose. The blood sugars are 100 mgs. or over per 100 cc.

Please note the low urinary sugar with a 264 mgm. per cent of blood sugar in a case which is being treated by homœopaths and which showed no albumin or acetone bodies in the urine.

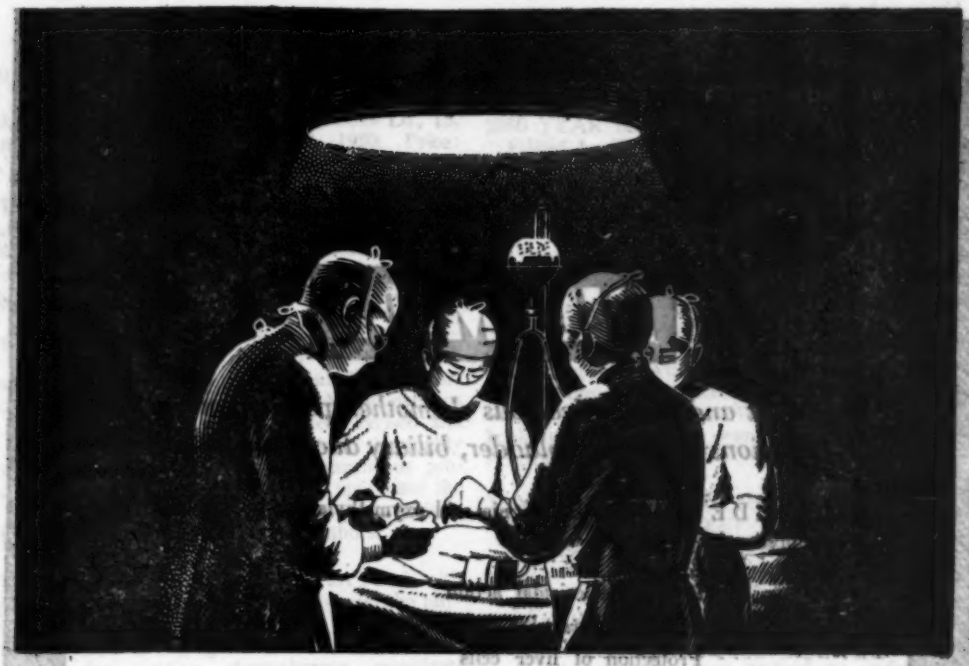
Can anybody help me by answering the following:

(1) Is this low urinary sugar a personal idiosyncrasy in spite of the kidney being apparently in order or could it be due to homœopathic treatment preventing a free excretion of sugar without preventing its presence in the blood in excess?

(2) Is it dangerous to prevent that free excretion without controlling the blood sugar? I am, etc.,

New Delhi. S. RAM.

File Number of Case	*Fasting blood sugar, in mgms. per 100 ccs.*	*Fasting urine sugar, in gms per 100 ccs.*	*Notes*
R15,408	100	0·0	Treatment allopathic
R15,281	100	3·47	" "
F15,121	108	0·35	" " Patient's weight too high for age and size. No albuminuria; parents diabetic.
F15,113	110	0·0	Treatment allopathic
R15,335	110	0·52	" "
F3,29	120	0·26	" "
F15,195	134	0·37	No treatment.
F15,247	194	0·27	A year later. Treatment sometimes allopathic but mostly homœopathic.
R15,668	134	0·0	
Above three records are of the same patient			
R15,519	142	0·39	Treatment allopathic
F15,134	143	0·0	" "
R15,366	160	0·0	" "
R15,653	162	0·0	" "
R15,593	168	0·50	" "
R15,543	188	0·28	" "
R15,553	192	0·25	" "
R15,247	194	0·27	See above.
R15,422	200	1·06	Treatment allopathic
R15,342	210	16·60	" "
R3,41	222	2·64	Albuminuria and a little acetone bodies
R3,42	295	1·66	Albuminuria and a little acetone bodies
(The above two records are of the same patient, the second being 6 days after the first)			The patient was in coma most of the time. Treatment was allopathic
R15,446	261	3·39	Treatment allopathic
R15,267	264	0·33	No albuminuria or acetone bodies. Treatment homœopathic for a long time.
R15,679	291	1·45	Treatment allopathic
R3,42	295	1·66	See above.
R15,651	295	3·5	Treatment allopathic
R15,637	296	3·10	" "



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NAS. 529

REVIEWS

A TREATISE ON TROPICAL THERAPEUTICS By R. N. CHOPRA, B. MUKERJI, and I. C. CHOPRA, Published by Messrs. U. N. Dhar & Sons Ld., 15. Bankim Chatterji St., Calcutta-12, 1950. Price: Rs. 25|- (Foreign 2 Guineas). Pp. 688+index.

The second edition of this popular book has appeared after 14 years under the joint authorship of Sir Ram Nath Chopra, the original author, and two of his colleagues. Dr. B. Mukerji, one of the collaborators, is well-known to the pharmacological world as a research worker of repute. Various factors, amongst others the last war, shortage of paper, etc. were responsible for the delay in publishing this edition earlier. This edition has appeared now incorporating all the latest information. Many portions have been re-written, redundant matters excised and new materials added to bring the book thoroughly up-to-date. Therapeutics has made tremendous progress within recent years and we fully appreciate the care with which the present edition has been revised, which reflects no small credit to the authors.

The book is divided into 4 parts. Part I deals with the general consideration of drug therapy and the physiological aspects of the subject. The general action of drugs, factors modifying the action of drugs, their modes of administration, chemotherapy, stimulants and tonics, pain and insomnia, pyrexia, diet and dietetics in the tropics, vitamins, nutritional diseases, climate, weather and man and metabolic diseases, have been dealt with according to the modern conception and will be found to be of great practical value by the practitioner forming as it does a scientific basis of drug action and its uses. Part II is devoted to helminthic diseases, including the various newly introduced chemotherapeutic remedies. Part III deals with all the protozoal diseases; these include amœbiasis, trypanosomiasis, leishmaniasis, malaria and spiral diseases. In Part IV, bacterial diseases and their treatment have been incorporated and include a consideration of "sera and vaccines", "anti-biotics", "sulpha group of drugs", etc. The information given in these sections is not only exhaustive about drugs and their rational uses but the important clinical aspects of the various conditions also have not been neglected. Special attention has been paid wherever necessary to the climatic and other factors responsible in the tropics in the causation of various diseases.

One cannot fail to observe the balanced presentation of the data incorporating all the acceptable recent publications on subjects of therapeutical interests, which will be of great help not only to the senior students but to research workers and practitioners in India and the Far East. Although there are some typographical errors, these do not detract from the usefulness of the book. We can, with every confidence, recommend the book and trust that it will find a place in every progressive medical library in India and the tropics.

The printing and get up are all that could be desired and reflect credit to the publication.

B. N. G.

1950 YEAR BOOK OF GENERAL SURGERY—Edited by EVARTS A. GRAHAM with a section on Anæsthesia—Edited by Stuart C. Cullen. The Year Book Publishers Inc., 200 East Illinois Street, Chicago 11, Price $5·00.

This volume commemorates the fiftieth anniversary of the Year Book of Surgery. The Editor has contributed an article "Surgical Progress in the Past Decade" which is both illuminating and instructive. The rest of the book follows the usual year book custom of abstracting worthwhile contributions during the year. An addition of the anæsthesia section has enhanced the value of the volume. We heartily recommend the book to all those who want to keep abreast of the surgical progress.

MIDWIFERY : PRINCIPLES AND PRACTICE FOR PUPIL MIDWIVES, TEACHER MIDWIVES AND OBSTETRIC NURSES—By R. CHRISTIE BROWN and B. GILBERT. Third Edition, 1950, pp. viii+894. Illustrated, Published by Edward Arnold & Co., London, Price 18sh. net.

The book has been revised to include recent advances in midwifery, particularly as they affect the midwives, and new diagrams have been added. The treatise will be of great practical value to those for whom it is meant as it lays great stress on the physiological principles and their application to midwifery. An additional section on Midwifery in the Tropics will be much more appreciated by those who practise midwifery in this country.

GOLDEN JUBILEE WORLD TRIBUTE TO DR. SIDNEY V. HAAS—Published by the Committee for the Golden Jubilee Tribute to Dr. Haas, Room 609, 730 Fifth Avenue, New York 19, N.T., 1949.

In this book is given a record of the world-wide tribute paid to Dr. Sidney V. Haas on the occasion of his completion of 50 years of medical practice. Dr. Haas is honoured for pioneering contributions to pediatrics, specially in the banana treatment of coeliac disease and atropine treatment of the hypertonic infants.

The book contains in addition a brief life-sketch of Dr. Haas and a list of his contributions on pediatrics.

AIDS TO SADHANA SERIES: (1) Hundred and Eight Sayings of Ramkrishna and (2) Essential Teachings of the Bhagbat Gita—By A. VISWANATHAN. Published by the author at Vengadi Village, Thimmarjampet Post, Dist. Chingliput *via* Conjeevaram. Price Re. 1|- and Re. 1|8|- each.

Dr. Viswanathan is well-known to our readers as Editor of the Indian Medical Journal, Madras.

In these two small books he has tried in lucid and simple language to depict the broad principles of religion and yoga as preached by Sree Ram Krishna in his teachings and as profounded in the Bhagbat Gita.

The readers will find these books useful when after reading them they will adopt in their own lives the principles enunciated.

BOOKS RECEIVED

(Detail reviews may not be published).

1. THE STRUCTURE OF MEDICINE AND ITS PLACE AMONG THE SCIENCES—By F. M. R. WALSHE, Published by E. & S. Livingstone Ltd., Edinburgh, Price 1s. 6d.

A reprint of the Harveian oration delivered on the 18th October, 1948. A discourse on the philosophy of Medicine.

2. NOTES ON INFANT FEEDING—By G. B. FLEMING and STANLEY GRAHAM, 3rd Edition, 1948, Published by E. & S. Livingstone Ltd., Price 3s.

A good booklet for medical students.

3. ANOMALOUS REMISSION—By L. W. J. HOLLEMAN and H. J. HARDON, O.S.R., Publication 7, Druk Vorkink Bandung, Indonesia, 1950.

Anomalous remission is defined as the excess remission of an otherwise perfectly "dull" surface in directions approximately opposite to an incident light bundle. This is shown by starches after the original particles of irregular shape had been transformed for the greater part into spheres by means of heat treatment.

4. REPORT OF THE SUB-COMMITTEE FOR REVISING MEDICAL CURRICULUM (PHARMACOLOGY).

Report of the Sub-Committee (Pharmacology) appointed by the Medical Council of India in 1949.

5. THE JOURNAL OF BONE AND JOINT SURGERY, February, 1950.

The Journal is now published in eight annual numbers—four from America and four from Britain. The combined subscription price for both British and American volumes is £4 10s. Published in United States of America by the American Orthopædic Association, The Fenway, Boston, Massachusetts, U.S.A.

In England, the publishers are Messrs. E. & S. Livingstone Ltd., 16 & 17, Teviot Place, Edinburgh.

6. LEPROSY : FACTS AND FICTION—By D. N. MUKHERJEE, M.B.B.S., with a Foreword by Ernest Muir, Price Re. 1|4|-, P. 46.

A booklet for lay people. May also be of some use to the medical man.

7. INDIAN JOURNAL OF NEUROLOGY & PSYCHIATRY (Organ of the Indian Psychiatric Society), Vol. I, No. 2, 1949.—Edited by DR. NAGENDRANATH DE, Office: 128-B, Dharamtalla Street, Calcutta-13.

A welcome publication.

8. THE JOURNAL OF THE INDIAN ANTHROPOLOGICAL INSTITUTE—Edited by B. S. GUHA.

9. THE INTERNATIONAL JOURNAL OF SEXOLOGY INCORPORATING MARRIAGE HYGIENE—Managing Editor A. P. PILLAY, M.B.B.S., O.B.E., annual subscription Rs. 12|-. Published from Whiteaway Buildings, Hornby Road, Bombay-1, India.

A useful journal in a neglected branch of medicine.

10. AYURVED - VIGYAN - MIMANSA — By PRASADILAL JHA, L.M.S., Parts 1 and 2 in one volume and 5 (separate) parts.

A Sanskrit contribution to Ayurved literature.

11. SOME REMARKS ON THE SURFACE BRIGHTNESS OF THE HELLAR SYTEM—By E. A. KREIKEN, O.S.R. Publication 10. Printed by Vorkink Bandung, Indonesia, 1950.

12. THE MEDICUS—Vol. I, Number 5, February, 1951, Editor-in-chief—MUHAMMAD SIDDIQUE QURESHI. Published by Q. Publications, 38, Zeenat Mansions, McLeod Road, Karachi, Pakistan. We welcome our new contemporary.

13. 1950 YEAR BOOK OF OBSTETRICS AND GYNÆCOLOGY—Edited by J. P. GREENHILL. The Year Book Publishers Inc., 200 East Illinois Street, Chicago, Price $5·00, P. 570.

This Year Book is in line with other Year Books. Abstracts are preceded by an editorial "Progress in Obstetrics and Gynæcology, 1940-50."

14. APPLIED CHEMISTRY, Vol. II Food—C. KENNETH TINKLER and HELEN MASTERS. The Technical Press Ltd., Gloucester Road, Kingston Hill, Surrey, 1948.

A book useful for the doctors and medical students.

CURRENT MEDICAL LITERATURE

Appendicitis

Wakeley and Childs (*Brit. M. J.*, **2**:1347, 1950) in dealing with the subject under the heading of diagnosis, stress on four points: In a case of uncomplicated appendicitis there is no place for "expectant" treatment. The case is one of acute appendicitis requiring urgent operation, or it is a case of chronic appendicitis in which operation may be performed as an elective procedure. There are several feaures of the case which may help in the making of a decision:

(*a*) Where symptoms which were intermittent have become constant or more frequent, or where there has been sudden and definite aggravation of the symptoms, operation should be regarded as urgent.

(*b*) Where fetor of the breath is appreciated, pungently but not constantly, operation must be considered urgent.

(*c*) Absence of pyrexia has no significance, but when slight pyrexia is associated with the signs and symptoms of appendicitis operation must be looked upon as urgent.

(*d*) Where vomiting and looseness of the bowel are prominent features of the history operation should be regarded as urgent.

(*e*) When pain is experienced in the left iliac fossa and may be spreading upwards to the left costal margin, but is associated with tenderness in the right iliac fossa, the appendix will be found lying in the pelvis and extending across the midline. Operation should be considered urgent in such cases.

(*f*) In children, if it is thought that they may have appendicitis, operation is always urgent.

(*g*) The path of development of the appendix must be remembered. Where the caecum is undescended an appendicitis may give rise to pain and tenderness high up under the costal margin; or the caecum may have descended into the pelvis, and tenderness may be found only per rectum.

Treatment—1. Chronic Appendicitis—Elective appendicectomy was performed through a muscle-split incision in the right iliac fossa. This incision was used in females as well as males whenever the diagnosis was assured. The wound was closed without drainage and the patient was allowed—nay, rather encouraged—to walk the next day, and if home circumstances were saisfactory the patient was sent home on the third or fourth post-operative day. A paramedian incision was used only rarely, when it was thought desirable to explore the abdomen.

2. Acute Appendicitis—Urgent appendicectomy was performed through a muscle-split incision in he right iliac fossa. The muscle-split incision can readily be converted, for greater ease of access in difficult cases, ino a muscle cut as used by the Newcastle school and originally described by Rutherford Morison. The peritoneum was closed without drainage. The skin was also closed without drainage unless it was thought that it might have been contaminated. In the event of complications being found at operation, treatment was modified as follows:

(*a*) If there was an appreciable quantity of seropurulent fluid in the abdomen, with an early general peritonitis, the peritoneal cavity was cleared of this, so far as was possible, by sucker and gauze mops, particular attention being directed to the pelvis and the right paracolic gutter. The peritoneum was closed without drainage, but the wound was drained. The patient was treated post-operatively with continuous gastric suction, nothing by mouth, and intravenous saline and glucose-saline, until the gut moved again spontaneously.

(*b*) Where appreciable involvement of adjacent visecera by local peritonitis was found the appendix was removed, 10 gm. of sulphathiazole and penicillin powder dusted over he affected area, the peritoneum closed without drainage, and the patient treated post-operatively with continuous gastric suction, nothing by mouth, and intravenous saline and glucose-saline. Only in the more severe cases were systemic penicillin and sulphadiazine given.

(*c*) Where an abscess was found surrounding the appendix the appendix was removed whenever possible, the cavity cleared of sloughs (and faecaliths, if present), 10 gm. of sulphathiazole and penicillin powder was dusted into the cavity, and the peritoneum was closed wihout drainage, but the wound was drained. The patient was given penicillin and sulphadiazine systemically post-operatively. And if the abscess was not compleely retrocaecal, post-operative suction and intravenous drip therapy was used.

3. Where the patient presented as a case of well-established late general peritonitis it was not possible to be certain preopratively that the appndix was the cause. Paramedian incision was used in these cases; a drainage tube was placed in the pelvis and a stab drain into the right iliac fossa, and the wounds were closed. The patient was given systemic penicillin and sulphadiazine and treated with gastric suction and intravenous drip therapy. The appendix was removed through a muscle-cut incision in the right iliac fossa later.

4. Where the patient presented with an appendix abscess, a muscle-split incision in the right iliac fossa was used. The appendix was not removed unless it was readily accessible. If the appendix was not removed a drain was placed into the abscess cavity after it had been cleared of pus and sloughs (and faecaliths, if present). If the appendix was removed the cavity was dusted with penicillin and sulphathiazole powder, and the peritoneum closed without drainage, though the wound was drained.

Depropanex in Post-Surgery

Heimark and Parson (*Minnesota Med.*, **33**:1102, 1950) in summing up their observations on the use of Depropanex (deproteinated pancreatic extract) following surgery write:

No ill after-effects from the use of depropanex.

Practically a complete elimination of post-operative paralytic ileus.

Less nausea and vomiting; therefore, less dehydration and acute dilatation of the stomach.

A smoother, easier, more pain-free recovery; therefore, a less anxious patient.

Intravenous fluids seldom used; therefore, economic to the patient.

Nasal suction and repeated enemas elminated; thus, less punishment for the patient.

Patients over fifty years make as smooth a recovery as do the younger ones.

The first injection of 4 c.c. is given to the surgical patient upon his return to his room even before he is awake. A second dose is given in the evening. These two doses are then given routinely twice daily for 3-5 days, depending upon the progress and the condition of the patient, as will as on the type of operation performed. The outstanding improvement on patients routinely given Depropanex postoperatively has been the control of paralytic ileus.

Nasal Solutions with Combined Theapeutic Effects

Thacker (*Eye, Ear, Nose and Throat Monthly*, **29**:609, 1950) writes:

There is great need for standardization of various nasal medicaments more nearly to fit the ideal physiological principles and needs in aiding the upper respiratory tract membrane in combating disease. Such an ideal nasal preparation should meet the following criteria:

1. The solution be stable and buffered to the pH level that is consistent with comfort and effective treatment of nasal disorder, using buffers consistent with body fluids. 2. The tonicity of the solution should approximate that of the blood stream, thus producing more effective absorption of the active ingredients, as well as partially eliminating its irritant properties. 3. The basic or primary stock solution should have a wide range of compatibilities, so that numerous drugs can be added which would not materially affect the tonicity and pH. The drugs which can be added for their therapeutic effect should be determined, and a pharmacist can then use such a stock solution without the necessity of precision instruments and the time-consuming process of determining the tonicity and pH of each individual prescription to be filled. 4. The solution should contain an effective wetting agent and neutral substance to increase the viscosity, in order that the medicaments will be kept in contact with the mucous membrane for as long a period of time as possible and to allow penetration of the tissue to the fullest extent. 5. The solution should contain an effective constrictor. 6. The solution should contain an effective antihistaminic to prevent the engogement from migration of excessive body fluids from the vascular system into the tissue spaces. 7. The ingredients of the solution should be hypo-allergic. However, if some potentially allergic medicaments are to be added, the antihistaminic used would tend to aid in alleviating allergic reactions. 8. The solution should be adequately preserved in order to prevent growth of bacteria, yeasts and moulds in the preparation which might, in some cases, cause subsequent reinfection of the patient. 9. The solution should not have a detrimental effect upon lysozyme production and function.

With these principles in mind, the following formula has been developed, in cooperation with G.A. Tozer, and his pharmaceutical associates. It may be used alone or in combination with certain other therapeutic drugs:

Phenazoline hydrochloride ..	0·125
Phenylephrine hydrochloride ..	0·250
Sodium bisulfate	0·125
Dibasic sodium phosphate	0·333
Potassium acid phosphate	0·167
Potassium chloride	0·344
Sodium chloride	0·218
Methyl cellulose	0·100
Zephiran solution (1 : 5000 qsad)	100·00 c.c.

1. This solution is stable and has a pH of 6·75; it is non-irritating to the upper respiratory tract mucosa and has a slightly salty taste. In fact, the solution does not produce any discomfort when instilled into the eye.

2. Phenazoline hydrochloride (antistine) ¼ to ½% is a satisfactory antihistaminic in controlling the local symptoms produced by the histamine liberated during inflammation and allergy. The use of the antihistaminic drugs also tends to make the solution hypo-allergenic to any drugs which might be added and to which the patient might be sensitive.

3. Hacemic ephedrine and phenylephrine hydrocloride (neosynephrin) are satisfactory vasoconstrictors. The former may be used in 1½% and the later ¼ to ½% without effecting the pH or tonicity. The stronger concentration is recommended for the more acute stages of congestion, after which the weaker strength may be used.

4. The buffer salts, dihasic sodium phosphate and potassium acid phosphate hold the solution at a constant pH.

5. The solution has been made isotonic by the addition of potassium chloride and sodium chloride and is therefore compatible with body fluids. By the use of Tozer's modification of Nicholas' formula, the Kcl and Nacl may be adjusted, if desired, to compensate for any drastic change in the molecular weight of other medicaments used. This solution is based on the average weight of the commonly used drugs.

6. Methyl cellulose is a neutral substance and aids in giving the solution viscosity, thereby serving the purpose of prolonging the time the medicaments will be in contact with the mucous membrane.

7. Zephiran (1 : 5000 to 1 : 20,000) is a self-sterilizing preservative and an excellent wetting agent. It serves the dual purpose of assuring penetration of the medicaments, due to lowering of the surface tension as well as curtailing the propagation of organisms on the mucous membrane and container sterilization.

Should the rhinologist desire to use a sulfonamide derivative in this solution, aminomethyl benezene sulfonamide may be added. It is compatible and the solution retains the proper pH. In a series of 46 cases, the author has found the medicament to be a satisfactory sulfa drug which does not produce any irritation or uncomfortable reaction when added to the above formula.

Among the antibiotics, penicillin in concentration 1000 to 5000 units per c.c., and bacitracin 500 to 1000 units per c.c. may be added for therapeutic purposes without altering the physical properties of the solution. However, if the preparation is to be prescribed in any sizable quantity, all except an amount sufficient for one day's treatment should be kept refrigerated, as these antibiotics are unstable.

The primary formula is incompatible with streptomycin and tyrothricin or any other medicaments which are incompatible with phosphates. Medicaments which are incompatible with phosphates should not be used in the eye or nose because of the phosphate content of the normal secretions.

The formula which has been worked out and tried clinically, approaches the ideal medicament for nasal and sinus diseases from the pharmacological, physiological and therapeutic view points. It can be compounded readily by the pharmacist

and is submitted to the medical profession as a solution to a vexing problem which has heretofore been much neglected.

Aminopterin in Treatment of Leukaemia in Children

Smith and Bell (*Am. J. Dis. Child.*, **79**:1031, 1950) describe the results obtained in 12 children with acute leukæmia treated with aminopterin (4-aminopteroylglutamic acid) since its introduction in the children's service of the New York Hospital in March, 1948. The group to be reported on comprises one patient with myelocytic leukæmia, two with the myeloblastic type and nine with lymphoblastic leukæmia. An additional case of lymphoblastic leukæmia, in which amethopterin (4-aminomethylpteroylglutamic acid) given by mouth resulted in a true bone marrow remission, is briefly discussed.

The observations on this small series of children are in general agreement with those in previously reported investigations. The main contribution of the present study is the emphasis on serial aspirations of bone marrow for appraising the inhibitory effect of folic acid antagonists.

During the treatment with folic acid antagonists it was not infrequently observed that a well defined differentiation between lymphocytes and lymphoblasts could not be made. Variations in staining technic were, therefore, carried out in instances in which these difficulties arose. Emphasis was placed on noting the reappearance of normoblasts in the bone marrow and of polymorphonuclear elements in the bone marrow and peripheral blood, since identity of these cells is unequivocal and is unaltered by treatment.

The daily white blood cell count, periodic determinations of hæmoglobin and red cell levels and serial bone marrow examinations served as hæmatologic guides in treatment. Aspirations of bone marrow were usually carried out at weekly intervals, or sooner when a precipitous drop in the white cell count or serious toxic symptoms occurred.

The number of marrow aspirations in a single patient varied from two to 35 and totalled approximately 150 for the entire group. While bone marrow aplasia is regarded as a sign of toxicity, one of the objectives of treatment was to produce a moderate drop in the total cellular content. Aminopterin was accordingly administered daily until the total marrow count dropped to approximately 30,000 nucleated cells per cubic millimeter. Where there are no facilities for bone marrow aspiration, a white blood cell count of 2,500 cells per cubic millimeter may be regarded as an indication for stopping use of the drug unless toxic symptoms previously ensued. Administration of the drug was not resumed until the approximate initial elevated levels returned, since it was observed that the bone marrow count frequently continued to fall despite the cessation of therapy and it was feared that irreversible and fatal aplasia might supervene.

Aminopterin was given in a daily dose of 0·5 mgm. intramuscularly, with cautious increases up to 1 mgm. when the response was inadequate. A further increase to 1·5 and 2 mgm. daily was employed only in refractory cases and in the absence of toxic symptoms. The parenteral route was preferred because experience has shown that the response to aminopterin given by mouth, although effective, is less consistent. The interval between the introduction of the drug and the development of toxic symptoms or a drop in the number of white blood cells or total bone marrow cell count varied with every patient. The total dosage of aminopterin in the 12 patients ranged from 6 to 54 mgm.

In addition to the antagonist, transfusions and antibiotics were freely employed. The prophylactic use of penicillin by injection or aureomycin by mouth became increasingly important as the cellularity of the bone marrow decreased and the peripheral leukopenia became more pronounced. Except in rare instances, red blood cell and hæmoglobin levels could not be maintained without recourse to frequent transfusion. Blood was administered whenever the hæmoglobin concentration dropped to 9 mgm. per hundred cubic centimeters of blood and the volume of packed cells to 24 per cent or less.

Use of aminopterin was ineffective in myelocytic and myeloblastic leukæmia. In five of nine children with acute lymphoblastic leukæmia, a reduction in bone marrow cellularity resulted and was associated with a transitory recovery of erythropoiesis and myelopoiesis.

Amelioration of clinical symptoms, such as the relief of pain in the bones, occurred frequently but could not be attributed to the drug alone because other therapeutic measures were simultaneously employed. Comparison with the leukæmic life span prior to the introduction of specific therapy revealed the disappointing fact that no prolongation was effected with the use of aminopterin.

Further trial with the folic acid antagonists is warranted, especially those of the order to amethopterin, which is one of the safest and which in moderate dosage can produce a remission when given by mouth.—*U.S. News Letter.*

Infantile Diarrhoeal Dehydration Treated with Adrenal Cortical Hormone and Potassium Chloride

Embdin (*Arch. Dis. Child.*, **25**:136, 1950) reports the use of adrenal cortical hormone and potassium chloride solution in the treatment of dehydration resulting from infantile diarrhœa. In the 83 cases reviewed, it was found that the potassium chloride solution employed (Darrow's solution) could be given by mouth when there was no severe toxæmia. The intramuscular administration of adrenal cortical hormone in doses of 2 to 6 ml. (2 ml. one to three times daily) was continued for ten to fourteen days. This resulted in prompt rehydration and gain in weight. In infants with severe toxæmia, intravenous administration of fluid was necessary at first, but the adrenal cortical hormone was employed subsequently and proved of value in completing "the process of rehydration" and promoting gain in weight. In these cases only a short period of fasting was allowed; then milk mixtures of low fat content were employed in feeding. With the adrenal cortical hormone preparation employed 1 ml. corresponded to 50 gm. of the fresh gland.

Methionine in Napkin Dermatitis caused by Ammoniacal Urine

Goldstein (*Arch. Pediat*, **66**:553, 1949) reports on the results of using methionine in 500 infants with ammoniacal urine. In 497 cases the cure was rapid and complete, the ammonia disappearing from the urine in 3 to 4 days and the napkin dermatitis and ulcerations in 7 to 10 days. The 3 cases in which methionine failed, aneurin administration resulted in a cure. The good results with these two compounds are due to the sulphur content. Methionine was administered in combination with granulated sugar under the proprietary name "Metiogram". One teaspoonful was given mixed in milk daily for one week; where the dermatitis showed no improvement in a weeks time, the dose was increased to 2 teaspoonfuls a

day. For infants 1 to 2 years old an initial larger dose of 1½ to 2 teaspoonfuls daily is advised. The preparation is palatable, soluble and stable. The only local treatment given was the application of zinc ointment.

Enuresis

Hubble (*Brit. M. J.*, **2**:1108, 1950) writes that the aetiology of enuresis is both debatable and debated. In a functional disorder with such an extraordinarily high incidence it is certain that multiple aetiological factors are at work; these should be considered under three heads—constitutional, environmental, and local.

The *constitutional* factor may reasonably be assumed to reside in some instability of neuromuscular control. The frequent finding of enuresis in relatives seems to support the existence of a constitutional factor.

That the *environmental* factor is often a psychological one is clear from the histories of children who revert to enuresis after being "dry". But the environmental situation in the second and third years is not easily determined in retrospect. A disorder of function such as enuresis that has lasted for months and years has inevitable results which encourage its persistence: on the one hand are the neurological factors implicit in chronic habituation, and on the other the emotional reactions which ensue both in parents and in children. The disorder persists long after the precipitating situation has disappeared and been forgotten.

It is possible that conditions giving rise to reflex irritation may occasionally precipitate enuresis; it does not seem reasonable or necessary to assume that they could continue as direct causes over a number of months or years, nor does it seems reasonable to accept such conditions as a tight foreskin, threadworms, coronal and clitoral adhesions, or a hypertrophied verumontanum as relevant in pathogenesis.

Treatment and Prognosis—Psychotherapy: The family doctor should exchange his physicianly scepticism for a surgical confidence in the potentialities of successful therapy. Anxiety must give place to confidence, and hope must cast out shame. While the personalities of mother and child should be assessed, no suggestion of blame should be attached to either. The child should be encouraged to make his own record of the dry nights, and a system of rewards may be usefully instituted. No recourse should be made to the psychotherapist unless the situation plainly demands it or unless the methods outlined here have failed. It must not be forgotten that there is a bad habit to be broken, and until it is removed a profoundly dysgenic situation remains. The symptom itself is the cause of a psychological disturbance more important than any which may have produced it, and the doctor's plain duty is to get rid of it. The battle against enuresis is a long one, and the doctor should play his cards one by one, always keeping a therapeutic trick up his sleeve.

Bladder-training: The restriction of the child's intake of fluid has not been shown to have any therapeutic value, but since there is some evidence that polyuria occurs in these children they should, if not asleep, be made to micturate within an hour of going to bed. They should later be thoroughly awakened at the parents' bed-time and made to pass water. Micturition should be made a fully conscious act, and to put a stuporous child on the pot is to perpetuate a condition which one is seeking to alter. Older children and adults may be given an alarm-clock to waken them at some time between 10-30 p.m. and rising. A system of day-time training should be instituted in the holidays. The child should be sent to the lavotory at fixed but gradually increasing intervals, beginning at one hour and increasing the interval by a quarter of an hour every second day. If the child can hold its water for three-hour periods in the day, dryness at night is facilitated. This method is most successful in children with irritable bladders who have day-time frequency.

Drugs: These are much more useful in therapy than some allow them to be. Sometimes they fail because they are casually and inefficiently applied. Suggestion is valuable in the control of enuresis, and since these remedies have a rational basis the physician's belief in their reasonableness will undeniably enhance their therapeutic powers. Drugs should be pushed to the limit of the child's tolerance before they are discarded. It is not uncommon to find that some children can tolerate a dose of 1-2 gr. (65-130 mgm.) of ephedrine or 15-20 min (0·9-1·2 ml.) of belladonna. Ephedrine is the most successful drug; it reinforces the sphincteric action. Methyl ephedrine is more prolonged in its action than ephedrine and has fewer side-effects. For a child aged 5-10 years, 2/3 gr. (45 mgm.) should to begin with be given in the morning, at tea-time, and at the parents' bed-time. Belladonna may be used at the same time (if ephedrine fails when given alone) and in increasing dosage until it produces dryness of the mouth or paralysis of accommodation, when the dose should be reduced. Phenobarbitone in doses of ¼ or ½ gr. (16 or 32 mgm.) should be given to the nervous child who suffers from day-time frequency, together with ephedrine or belladonna. The child who is difficult to awaken may be given amphetamine, 2·5-10 mgm., at bed-time, in order to lighten the depth of sleep. In some children ephedrine has a similar effect.

Associated conditions such as balanitis or vulvo-vaginitis should be treated whether or not they are thought to be affecting the enuresis. Stilbœstrol in doses of 0·5-1 mgm. given daily for two to three weeks is often effective in curing vaginitis. Enuresis should not be treated by circumcision. The occasional wet bed may be ignored but a long relapse will require a fresh approach to the problem, with the institution of the old remedies and the introducion of new methods.

Chronic Enuresis: The measures outlined above may be expected to be successful in most cases of acquired or intermittent enuresis. There will remain a number of children with cronic enuresis—possibly representing one-third of all cases—who are unaffected by such treatment. They should be removed if possible to the home of a relative prepared to tackle the problem, to a residential school, or to a special boarding-school. It has often been found that measures which failed at home can be successfully applied elsewhere.

A considerable number of enuretic children carry their disability into adult life. The problem in enuretic adults and in children with chronic enuresis is essentially the same, for in all adults with functional incontinence of urine the disorder has persisted since childhood.

Strom-Olsen reports that amphetamine is very successful in the treatment of enuresis in adults. He emphasizes again that large doses may be required, varying from 10 to 30 mgm. given at bed-time. Before any person is dubbed an incurable enuretic, almost any therapeutic method is justifiable, however, fallacious its aetiological foundation.

SUPPLEMENT
Journal of the Indian Medical Association

VOL. XX, No. 9 CALCUTTA JUNE, 1951

ASSAM PROVINCIAL BRANCH—At a meeting of the Working Committee of the branch held on 18th November, 1950, at the residence of Dr. H. K. Das, 6 members were present and Dr. H. C. Baruah presided.

The Committee discussed the grievances of the A.M.O.'s of the tea gardens. The Committee appointed a small medical relief committee to deal with emergency medical relief works to be undertaken during floods, earthquakes and epidemics. The Committee also decided to co-operate with the Red Cross authorities in organising social service in general, and rural nursing and maternity services, in particular.

As a lot of propaganda work was necessary to popularisé the I.M.A. in Assam, the Committee decided to set apart Re. 1|- per member out of Rs. 3|- received as Provincial Quota of C.F.C. for membership drive and propaganda work.

JHARGRAM BRANCH—At a meeting of the branch held on 19th November, 1950, at Dr. Mondal's dispensary, 15 members were present and Dr. A. L. Das Gupta presided.

The members condoled the sad death of Dr. Surya Kumar Ray, one of the oldest and popular private practitioners of Jhargram.

PORBANDAR BRANCH—At a special meeting of the branch held on 20th November, 1950, 15 members were present and Dr. H. H. Chavda presided.

Dr. I. B. Patwari spoke on his recent experiences in England regarding U. K.'s schemes on national health, medical education, post-graduate medical education etc.

At another meeting of the branch held on 26th November, 1950, 15 members were present and Dr. Chavda presided.

After the routine business was transacted, Dr. R. D. Dave spoke on "Common Eye Diseases, Their Prevention and Treatment".

UTTAR PRADESH BRANCH—The 16th annual meeting of the branch council was held on 21st November, 1950 at Moradabad. 13 members were present and Dr. A. C. Banerjea presided. Dr. H. N. Shivapuri was re-elected as secretary of the state branch for 1950-51.

The invitation of Lakhimpur-Kheri branch to hold the 16th U. P. Medical Conference in November 1951 was accepted by the council. The question of stoppage of private practice by certain categories of medical officers was discussed by the members present.

MADURA BRANCH—At a general meeting of the branch held on 25th November, 1950, about 75 doctors attended and Dr. P. Vadamalayan presided.

The meeting condoled the sad death, in England, of Lt. Col. T. W. Harby, I.M.S. (R), ex-D.M.O. of Madura.

After the routine business was transacted Dr. S. V. Joseph spoke on the "Treatment of Burns."

After the lecture the following films lent by I.C.I. (India) Ltd. were shown :—

1. Open drop ether.
2. Control of infection in surgical dressings.

At another meeting of the branch held on 16th December, 1950, 50 doctors attended and Dr. Vadamalayan presided. The meeting condoled the sad death of Sardar Patel.

The difficulties of the members in purchasing and possessing spirituous tinctures and liquors, in view of the prohibition, were discussed.

Dr. K. Balasubramaniam, then spoke on the "Diagnosis and Treatment of Fractures." After the lecture, a film on "Peptic Ulcer," lent by John Wyeth & Brother was demonstrated.

TANJORE BRANCH—At a clinical meeting of the branch held on 25th November, 1950, 40 members were present and Dr. N. Vaidyanathan presided.

Dr. E. K. Menon spoke on "Acute Intestinal Obstruction" and the subject was thoroughly discussed.

KANPUR BRANCH—The annual general meeting of the branch was held on 26th November, 1950 with Dr. B. N. Bhallay in the chair. Over 120 members were present at the meeting. The members condoled the sad death of Dr. K. S. Ray and elected Dr. Bhallay and Dr. J. P. Nigam as president and secretary for the year 1950-51.

BASTI BRANCH—At a meeting of the branch held on 30th November 1950, 12 members were present and Dr. J. N. Jaswal presided. After the routine business some interesting cases were demonstrated by Dr. S. C. Sharma and Dr. Chanchal Singh.

DEORIA BRANCH—The fifteenth annual general meeting of the branch was held on 29th October, 1950. After the routine business was transacted the meeting was adjourned.

At the adjourned meeting of the branch held on 2nd December, 1950, Dr. G. P. Srivastava and Dr. R. C. Tiwari were elected as President and Secretary of the branch for the year 1950-51.

SOUTH KANARA BRANCH—The annual general meeting of the branch was held on 2nd December, 1950 at Wenlock Hospital, Mangalore. 27 members were present and Dr. A. G. Nambiar presided. After the routine business, Dr. Nambiar and Dr. M. U. Rao were elected as President and Secretary for the year 1950-51. The members thanked Dr. K. R. Kini, the outgoing Secretary, for his excellent services to the branch since its inception.

AJMER-MERWARA BRANCH—The 14th annual general meeting of the branch was held on 3rd December, 1950 with Dr. C. H. Primlani in the chair.

The members condoled the sad death of Dr. K. S. Ray and elected Dr. Primlani and Dr. S. P. Sen as President and Secretary of the branch for the year 1950-51.

MADRAS BRANCH—The annual general meeting of the branch was held at the Madras Medical College on 7th December, 1950. Dr. D. V. Venkappa was elected as President and Drs. K. L. Narayana Rao and A. M. Sivaraman as Secretaries of the branch for the year 1950-51.

A resolution was passed requesting the Government of Madras to create an atmosphere in villages conducive for registered medical practitioners by giving them better facilities to work and more attractive terms and conditions for rural medical service.

ADONI BRANCH—An inaugural general meeting of the members of the profession in Adoni was held on 17th December, 1950, at which 8 doctors were present and Dr. B. Narayane Rao presided.

After the resolution to form the branch was passed, Drs. M. P. Sharma and N. N. Swamy were elected as President and Secretary respectively.

EAST-GODAVARI BRANCH—At a general meeting of the branch held on 23rd December, 1950, Dr. K. Vasudeva Rao presided. At the outset the members condoled the sad death of Sardar Patel.

Dr. B. Venkataraju spoke on the "Principles of Repair in Hernia Operations". This was followed by a lecture on "Pain in the Head" by Dr. S. Jagannadham. Dr. Vasudevarao then spoke on the "Modern Treatment of Tuberculosis of the Lungs." Before the meeting terminated, films on "Digestion of Food" and "Heart" were demonstrated.

MIDNAPUR BRANCH—At the last annual general meeting of the branch held on 30th December, 1950, 22 members were present and Dr. N. C. Das Gupta presided.

The Secretary informed the members that the branch had arranged for a monthly quota of sugar for dispensing purposes of doctors. The members were also requested to arrange for vaccination and inoculation, in a mass scale, at their dispensaries, during epidemics of cholera, small pox and typhoid.

Drs. B. N. Sinha and M. Das were elected as President and Secretary respectively of the branch for the year 1950-51.

PORBANDAR BRANCH—At a meeting of the branch held on 31st December, 1950, 17 members were present and Dr. H. H. Chavda presided. At the outset, the members condoled the sad deaths of Sardar Patel and Dr. K. S. Ray.

Dr. B. D. Jhala read a report of a case of 'Vesico-Vaginal fistula". Dr. D. M. Shah then read a report of a case of "Chorea".

XX PUNJAB STATE MEDICAL CONFERENCE—The 20th Annual Conference of the I.M.A., Punjab State Branch, was held on 3rd December, 1950 in the spacious hall of the Arya High School, Ludhiana, under the Presidentship of Dr. Ram Rakha Dheer of Jullundur. It was scheduled to be held on 2nd and 3rd December, 1950 but on account of the sudden and sad death on 1st December '50 of Hon'ble Dr. Lehna Singh, Minister for Health, Punjab, who was to inaugurate the Conference, the programme was changed and the Conference started on 3rd December, 1950, at 9 *a.m.* and lasted till late in the evening.

A condolence resolution was passed on the sad demise of Dr. Lehna Singh all standing.

Welcoming the gathering Dr. Sham Singh Satija, Chairman, Reception Committee, described how the town of Ludhiana had been founded by the Lodhis. He then said: We have here the Christian Medical School for Women which came into existence at the initiative of Dame Edith M. Brown in 1894. This school is widely known throughout India since it admits students from all over the country. It has attached to it the Memorial Hospital which has done remarkably good work for the relief of suffering women. Ludhiana also rightly claims the distinction of having the Arya Medical School which was established 17 years ago and is a voluntary effort in the field of medical education. The Dayanand Hospital in which the clinical training to the students of this school is imparted has also greatly helped in the field of medical relief. This town is also the proud possessor of probably the biggest Government College in the Province. It has a Government College in the Province. It has a Government College for women, the Arya College, and the Government Hosiery Institute and many more educational and technical schools. The latest additions after the partition have been the Government Agricultural College and the Ludhiana Maternity Hospital.

After the welcome address was read by the Chairman of the Reception Committee, Dr. Col. P. C. Dutta, Director, Health Services, Punjab, inaugurated the Conference. He appealed to the Association for its cooperation with the Government in dealing with the health problems of the State. The President, Dr. Ram Rakha Dheer, then read his address.

The Secretary and the Treasurer then read their reports for the year 1949-50 which were adopted unanimously. The Exhibition was then opened.

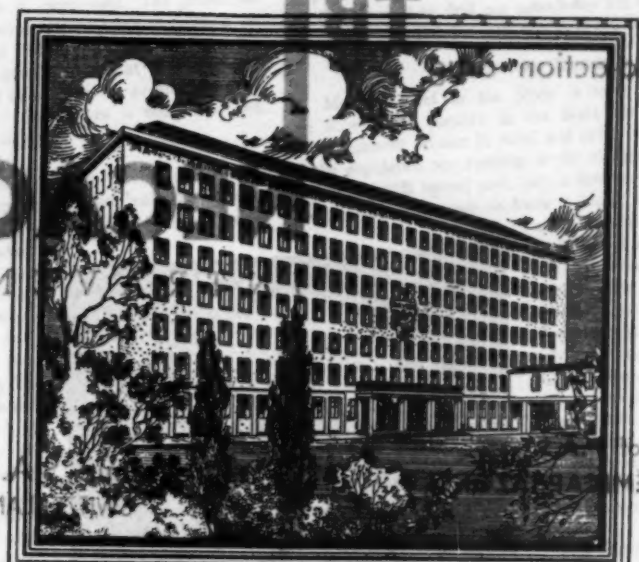
The Scientific session started before lunch and lasted for over three hours. Papers on Thoracoplasty, Pneumoperitoneum, B.C.G., Some Disabilities of the Back, Chemotherapeutic of Antibiotics and Pneumographic Studies of C.N. System were read by Drs. Roy, Sehgal H. N., L. R. Doncre, Virgin, Thapar G.D., and Randhir Singh Seegat respectively. The papers were very much appreciated by the audience.

Dr. Munshi Singh of Jullundar was elected as the Hony. Provincial Secretary of the State Branch.

PRESIDENTIAL ADDRESS

The following are extracts from the presidential address delivered by Dr. Ram Rakha Dheer:—

To the doctors I want to say that though their demands are just and honest still they should not shut their eyes to the shape of things to come. Trade union is very necessary for existence in this world of struggle. Especially it is very essential for the railway employees and mill hands but the medical profession should be above it. Our struggle for exist-



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ence should be above it. Our struggle for existence should not be on the same lines as that of other occupations. In other professions there is always a certain proportion of self-interest while rendering service to community. The proportion between self-interest and service varies from occupation to occupation. I can assure you that the profession where the proportion of service is much greater than that of self-interest is the medical profession. On account of the greater emphasis on service our profession is regarded as a noble one and commands great respect in society.

To speak the truth, we would not have been able to serve so well as we have done in the past without the sense of service. So I would appeal to my brethren to cease talking whatever little talking we some times do about our rights, and look upon our profession only from the point of views of service. We have been happy and will always be so as members of this noble profession by walking on the path of pure and disinterested service without thinking much of our rights. The only right on which we should insist, should be the greater scope for rendering better service to the community.

Dr. Ram Rakha Dheer
President, XX Punjab State Medical Conference, Ludhiana

Food production and the health of the community are inter-dependent. Without efforts to step up food production, health of the community cannot be raised. Unless the general health of the community is good, diseases cannot be effectively prevented because the soil is more important than the seed in dealing with public health problems. It is equally true that a sick nation cannot complete the quota of its production. This vicious circle of ill-health and want of food will have to be broken and we the members of this Association have a definite role to play in this very important problem which faces the country in the shape of a struggle between life and death

Under the present condition the Government will take another ten years to increase production. They will wait till the Bhakra Dam is constructed and then another 10 to 20 years to raise the body resistance of the State. We cannot wait so long looking helpless.

Nutrition of the State

With nearly half the population of the State consisting of displaced persons, with greatly reduced purchasing power and the progressingly rising price of food products and adulteration of daily necessities of life, the nutrition of children, expectant mothers, the sick and the old has very considerably fallen. Pure ghee has not been seen by many for the last many years. Even the good quality food grains are not regularly supplied in godowns. Vegetable ghee which is not quite harmless has taken the place of pure ghee and butter which are so important a constituent of our diet in the Punjab. A public health nutritional laboratory should be started by the Government to find out substitutes for the articles of food which are essential but are not easily available.

Medical Relief

Medical relief to the State is very inadequate. There are about 1,650 doctors in the State out of whom 569 are in Government service in rural and urban dispensaries. 80 p.c. of the population are residing in the villages, that is, one crore of population is served with only a few more than two hundred doctors. It is not easy to force a doctor to settle in a village after spending heavy amounts of hard-earned money of his parents. He feels reluctant to go a village where there is no provision for the education of his children. If arrangements for the education of children are made by the Government, and his earnings are insured to be as much as that of his fellow practitioners in the city, many doctors will like to escape from this burden of city life. Here again the Government will have to play her part.

Medical Education

There are 1,650 qualified doctors and there are three medical institutions, a college at Amritsar, and two medical schools at Ludhiana. There are tolerably sufficient numbers of qualified doctors in cities, but in the rural Punjab there is only one doctor for every 50,000 people. The Punjab requires at least one doctor for every 2,000 persons and the total number of doctors thus required would be 6,000. At present not more than 100 doctors qualify every year. At this speed it will take us 60 years to give qualified aid to the population of our State. I would very earnestly implore the Government of the State to make some arrangements for speeding up the turning out of qualified medical men.

It is gratifying to learn that the long-felt injustice and mischief created by the foreign rulers have been removed or are going to be removed from 1952. There would be no admission to the Licentiate course after 1952 and there would be only one standard of medical education in the State. There is no dearth of candidates for admission to the medical college and schools. Every year hundreds of deserving students are refused admission not because they are not qualified for admission but because there is no room for them in the schools. But the question arises, what would happen to the existing institutions after admission is stopped to the licenciate classes. They may either be raised to colleges or closed down.

To close them down is unthinkable. So both the schools at Ludhiana must be raised to colleges. There is a move from the Central Government to raise the women Christian Medical School at Ludhiana to the college standard, a very good step in the right direction. The Arya medical school of Ludhiana also must not be allowed to be closed down. I would appeal to the Punjab State Government and the public to come to the help of the present school authorities in enabling them to raise it to the college standard. The I. M. A. will help them to their utmost. It is rendering a very useful service to the State, and the public should not be deprived of this valuable service. I want the members of our State I. M. A. and the public to be ready to save this institution, otherwise it may be too late to do so later on.

Registration of Vaids and Hakims

Unhappily and unfortunately, the number of quacks in the villages is increasing every day and this must be checked as early as possible. To register all the Vaids and Hakims for which a Board has been created is a step in the right direction. It is the duty of the members of the Board who are qualified Vaids and Hakims, not to give registration to those who are below a certain standard, and to complete this work as early as possible, because it is in the interest of the profession as well as the public to save themselves from further intrusion of undesirable quacks in the profession. After the registration of Vaids and Hakims, and Homœopathic practitioners and dentists has been completed, no unregistered medical man will be allowed to heal or pretend to treat a sick person.

Private Practice and Government Doctors

The Medical Department is a beneficiary department. The Revenue Department collects money and feeds the beneficiary deparments which are primarily Health and Education. These departments are neglected because they give no income to the Government. The pay in the medical department is purposely fixed at a lower level than that of the corresponding ranks in other departments. If it is asked why the pay of this department is lower, the answer is at once given that they are allowed private practice. It is strange to hear this answer. It should be asked straight: "Is the practice allowed because they are given low pay, or private practice is necessary to give medical aid to the rural areas and other necessary places. If the reason of allowing private practice is to compensate the doctor for the low pay, I think it is not fair to ask a whole-time worker to make his both ends meet partly out of his salary and partly out of the money he earns by private practice. The Government must allow him a reasonable pay so that he can live honourably. To compensate the whole-time servant of the State for his low pay by allowing him private practice is tantamount to asking him to fleece the people. This is true in majority of the cases. If private practice is allowed on grounds of expediency, where no private aid is available as in rural areas in some districts, special permission could be given to doctors who attend such cases and the fee thus charged should be deposited in the treasury. This is done by the mission doctors who are fully supported by the mission authority.

Allowing doctors to practise even outside the Hospital has led to many difficulties and malpractices only too well known to every one of us and to the public.

The licentiates are being neglected and they are not being given a proper place in the service of the community. The same thing may happen in the case of present graduates. After 20 years they may not be thought fit to serve the country because they have no knowledge of social medicine and because the value of the preventive medicine has not been taught to them.

It is ridiculus and most unreasonable to differentiate medical men on the basis of day-to-day change in the progress of medicine. Unless the Government encourages the medical licentiate it would not be possible for him to serve the community with the skill and enthusiasm expected from him. Day-to-day changes in scienific methods should not be the only criteria for serving the community.

There should be one standard of minimum medical education in future. No body can deny this. But in view of the past valuable services rendered by the licentiates in the civil and the military they should be treated on a par with graduates and their names should be taken on the all-India medical register. They have played their parts well in the service of their country and in order that they may continue their duty with the same enthusiasm, they should be encouraged by being included in the all-India medical register.

Those who are willing to join medical college should be provided with all facilities to join it. Provisions should be made for admission to medical colleges of all licentiates who wish to attend the supplementary courses of instructions to obtain medical degrees. The slogan "once a licentiate always a licentiate" must be killed but along with it not the licentiate himself whose services to the country have been and may yet be for a considerable time of great value.

The Indian Medical Council Act is under consideration and it is rumoured that the licentiates are to be considered unfit for that register on a par with other medical men. A licentiate who has served the army to the utomst satisfaction of all the rank and file of the unit is not considered up to the mark by the Medical Supreme Court.

The Licentiate knows his duties and has played his part to the satisfaction of all concerned, both the public and the Government, in carrying out these duties. He knows his rights too, which consequently follow. If he is neglected and is not being given an honourable place from where he can serve still more enthusiastically, he would fight to the bitter end for his rights. He wants to press for his right on equal basis with other medical men. There should be no fixation of seats in the Provincial Medical Council for graduates and licentiates, all registered medical men should have the right of vote in selecting a candidate to the membership of the Provincial Medical Council.

Another discrepancy noticed in the present system of our Government is that there is an unreasonable difference of pay between different grades of services of the same department. The subordinates in all the departments are getting pay that is hardly sufficient to meet even the bare necessities of their daily life. Menials of the department are paid not enough to provide themselves with two square meals a day. This unjust inequality of status and pay between man and man must be stopped if full work is to be extracted from them. This inequality was introduced by our foreign rulers to create distinctions and thus pave the way to exploitation of us all. This still continues. There should be a certain standard of minimum and maximum requirements of Government servants and these estimates should be based on the general economic condition

of the country and standard of living of the masses of the country.

So I would request that no man in service should get less than Rs. 100 (menials) because it is impossible to carry on with a salary lower than this and none should be paid more than Rs. 1000 however high his office may be. If this is not done and the pay of the lowest and the highest are not fixed within reasonable living standards, the menials and the subordinates would not be expected to serve the country to their utmost capacity. Sacrifice will have to be made by the higher ranks. New recruitment to the services must be on the basis of pay sufficient to enable a man to live well. No doctor should get less than Rs. 300. There should be one grade of service and the minimum pay should not be fixed at less than Rs. 300. In advertisements the practice of mentioning a graduate or a licentiate for ordinary posts, should also be prohibited.

Government doctors serving in the rural areas must be paid more than their counterparts in the cities and small towns and there should be special allowances for the rural areas. This is the only way to induce men from among the different grades of services to go to the rural areas.

Obscene Advertisement

"A lady doctor with no medical qualification has come back from America after completing advance studies and research, her diagnosis is accurate and treatment 100% successful." Such advertisement is seen daily in the English daily of the province and other English dailies of the country. It is pity that no law exists in the land to save the ignorant public from such scandalous advertisements. Poor, ignorant people do not know that a qualified medical man cannot advertise like this and those who advertise in their names are not qualified men. I would request the Government to come to the help of the ignorant public by enacting some law to prevent the appearance of such advertisements and appeal to the management of the papers that money thus earned should not be considered in the interest of the country.

Vernacular dailies are greater sinners in this respect. Knowing fully of the harmful effect of these advertisements they allow these to be published in their papers. I am not wrong in my estimation that more than 1/5 of the advertising space of vernacular dailies is given to advertisements regarding sexual debility, birth control, the birth of the male child and cure for venereal diseases. I would request the vernacular dailies that they should consult the Secretaries of the local or provincial branch of the I.M.A. and the Vaid or Hakim Sabha before allowing these advertisements to be published in their papers.

RESOLUTIONS ADOPTED AT THE CONFERENCE

Condolence Resolutions:

I. This Conference places on record its deep sense of sorrow at the sad and untimely demise of the following members of the I.M.A. during the course of the year:—

1. Colonel B. S. Nat, I.M.S. late Director of Health Services, Punjab; 2. Dr. K. S. Ray, Editor, Journal of the Indian Medical Association; 3. Dr. Ramji Das, President, Rupar Branch, I.M.A., Punjab; and 4. Dr. Hira Lal, Ambala Cantt.

II. This Conference places on record its profound grief at the tragic and untimely demise of Dr. Lehna Singh Sethi, Minister for Health and Rehabilitation, Punjab. A very efficient medical man, a valiant fighter for all just causes, an honest and selfless worker and, above all, a man of the poor and afflicted, his death has created a void in the public life of the State which it would be very difficult to fill. The Conference offers its heartfelt condolence to the members of the bereaved family and prays for the departed soul.

Other Resolutions:

1. In view of the fact that the Punjab Medical Council has received its share of the funds of the old Punjab Medical Council, United Punjab, this Conference is of the opinion that the Council is not justified now in charging Registration Fee from the medical men who were previously registered in the United Punjab. Resolved further that the fees already charged in such cases should be refunded forthwith.

2. Whereas under the provision of the Vaids and Hakims Registration Act, 1949 duly qualified Vaids and Hakims can get themselves registered and whereas this provision has greatly facilitated the detection of the quacks in the profession, this Conference urges the Government to enact legislation prohibiting practice by unregistered Vaids and Hakims.

3. Resolved that the State Government be requested to give due representation to the Indian Medical Association on the various committees set up or to be set-up hereafter by it pertaining to the medical and health matters.

4. This Conference conveys to the State Government its disapproval for obvious reasons the latter's intention to provide a separate representation and reservation of seats for medical graduates and licentiates on the Punjab Medical Council and hereby requests for the provision of joint electorates without any reservation whatsoever.

5. Resolved that this Conference urges the Government to raise the scale of pay of Assistant Surgeons class II from Rs. 120—5—145—E.B./5—170—8—250 to Rs. 200—10—300—15 =450 p.m.

6. Resolved that this Conference strongly urges the Government of India to throw open forthwith short-service Regular Commission to the medical licenciates as well.

7. Resolved that this Conference is of the opinion that the I.M.A., should arrange educational propaganda to popularise the modern scientific system of medicines among the masses of India by lectures, pamphlets, newspapers and other audio-visual means.

8. Resolved that the East Punjab Government be requested to have the existing medical schools up-graded to degree colleges by 1952.

9. This Conference reiterates its resolution adopted by the Annual Medical Conference held at Patiala in 1949 which goes as under:—

> "This Conference requests the East Punjab Government to place a bill before the Legislative Assembly to so amend the Indian Medical Act of 1916 as to forbid the use of the title "Doctor" by medical men other than those trained in the modern scientific system of medicines or those on whom the degree of doctorate has been conferred by a university recognised by the Government and further stresses on the Government that the practitioners in other systems of medicine be made to write as Registered Ayurvaid or Registered Hakim and not allowed to use the word "Registered Medical Practitioners."

10. Resolved that to prevent further deterioration in the standard of health of our children through malnutrition this Conference recommends to the Government to make the local

bodies to provide 8 ounces of whole milk to every undernourished child in all the primary and middle schools run by them and that the Government should bear half the expenses on this account.

11. Resolved that to facilitate efficient working the services of the municipal Medical Officers of health be provincialised before the proposed Punjab Public Health Bill becomes a law and the municipalities be made to contribute towards their pay and pension.

12. Resolved that the services of rural Medical Officers be provincialised and that they should not be allowed to stay in the rural areas more than five years and if it is not possible at present, adequate facilities be granted to the rural Medical Officers for the education of their children.

13. Resolved that rural Medical Officers should by turn be given at least a month's refresher training at the District Headquarters Hospital on State expenses as was the case in the United Punjab some years back.

I.M.A., WORKING COMMITTEE—Proceedings of the 39th Meeting of the Working Committee of the Indian Medical Association held on 24th & 25th March, 1951, at Delhi, in the Delhi Medical Association Hall, subject to confirmation by the Working Committee at its next meeting to be help in July, 1951:—

Members present:—

(a) *Ex-officio:*—1. Dr. T. N. Banerjee (Patna), *President* in the chair; 2. Dr. Chamanlal M. Mehta (Bombay), immediate *past President;* 3. Dr. A. K. Sen (Calcutta), *Senior Vice-President;* 4. Dr. S. C. Sen (Delhi), *Hony. General Secretary;* 5. Dr. H. R. Dawar (Delhi), *Hony. Treasurer;* 6. Dr. R. Sinha (Calcutta), *Hony. Joint Secretary;* 7. Dr. A. P. Mittra (Delhi), *Hony. Joint Secretary;* 8. Dr. Damodar Prasad (Patna), *Hony. Joint Secretary;* 9. Dr. A. D. Mukharji (Calcutta), *Editor, Journal of the I.M.A.* (b) *Representatives from Provincial Branches:*—10. Dr. G. V. Hanumantha Rao, 11. Lt.-Col. T. S. Shastry (in place of Dr. B. Tirumal Rao), Andhra Provincial Branch; 12. Dr. A. C. Ukil, 13. Dr. P. K. Chatterjee, 14. Dr. Manas K. Roy Chowdhury, 15. Dr. J. Mojumdar, Bengal Provincial Branch; 16. Dr. U. B. Narayanrao (in place of Dr. B. R. Nayen), 17. Dr. C. S. Thakar, Bombay Provincial Branch; 18. Dr. S. Samaddar, 19. Dr. P. N. Sinha (in place of Dr. G. K. Ghosh), Bihar Provincial Branch; 20. Dr. A. V. Madangopal (in place of Dr. B. K. Vinchure), Madhya Pradesh Branch; 21. Dr. J. N. Bahadur, Delhi Prov. Branch; 22. Dr. N. D. Mehta (in place of Dr. P. R. Trivedi), 23. Dr. K. V. Thakkar (in place of Dr. C. P. Bhat), Gujarat & Saurashtra Provincial Branch; 24. Dr. B. V. Mulay, Maharashtra & Karnatak Prov. Branch; 25. Dr. Ram Rakha Dheer, Punjab State Branch; 26. Dr. P. A. S. Raghavan, 27. Dr. U. Krishna Rau, 28. Dr. P. B. Annangarachariar, S. Indian Provincial Branch; 29. Dr. Sada Nand Saxena, Madhya Bharat Provincial Branch; 30. Dr. D. G. Ojha, Rajputana Provincial Branch; 31. Dr. C. O. Karunakaran, Travancore-Cochin Provincial Branch; 32. Dr. H. Hukku, 33. Dr. (Capt.) H. N. Shivapuri, 34. Dr. S. N. Saxena, U. P. State Branch; (c) *Co-opted members:*—35. Dr. R. A. Amesur (Bombay); 36. Lt.-Col. Amirchand (Delhi); 37. Dr. S. N. Kaul (Delhi); 38. Dr. H. S. Dhupia (Delhi)

Dr. T. N. Banerjee, the President, was in the chair.

1. *Condolence Resolutions.*

The following resolutions of condolence were passed all members standing and observing silence:—

(a) This Meeting of the Working Committee of the Indian Medical Association places on record its deep sense of sorrow at the demise of Major M. G. Naidu, one of the past Presidents of the Indian Medical Association and resolves to convey to Dr. N. M. Jai Soorya and members of the bereaved family its condolences.

(b) The Working Committee of the Indian Medical Association places on record its deep sense of sorrow at the sad demise of the following members of the Association and conveys its heartfelt sympathy and condolence to the members of the bereaved families:—1. Dr. Abdul Hussain (Gorakhpur), 2. Dr. J. C. Ghosh (Raniganj), 3. Dr. K. K. Verma (Indore), 4. Dr. Sushil Kumar Bhattacharjee (Tarakeswar), 5. Dr. A. Roy Chowdhury (Delhi), 6. Dr. A. N. Sarkar (Patna), 7. Dr. D. P. Ghosh (Banaras), 8. Dr. H. L. Khurana (Dehradun), 9. Capt. A. P. Misir (Banaras), 10. Dr. Baij Nath Verma (Lucknow).

2. *Messages of inability to attend.*

Messages were received from the following members for inability to attend this meeting:—1. Dr. C. P. Bhat (Bhavnagar), 2. Dr. G. K. Ghosh (Patna), 3. Dr. B. K. Vinchure (Nagpur), 4. Col. K. N. Waghray (Hyderabad), 5. Dr. P. R. Trivedi (Ahmedabad), 6. Dr. G. V. Joshi (Hubli).

3. *Confirmation of the proceedings of the last meeting of the Working Committee held at Sholapur on 24th and 25th December, 1950.*

The Proceedings of the 38th Meeting of the Working Committee held at Sholapur on 24th & 25th December, 1950, were duly confirmed.

4. *Business arising out of the proceedings of the last meeting of the Working Committee.*

(1) *Indian Pharmacopœa and the tentative list of drugs.*

Dr. A. K. Sen who had been entrusted with this work explained to the house that it was under preparation and was receiving his attention.

(2) *Letter from the Railway Board, re. pay, status and prospects of medical personnel.*

The Hony. General Secretary informed the house that the matter was receiving his attention and that a circular on the subject had been issued in January, 1951, from the Central Office to all Provincial Branches but so far replies had been received from only two.

Some discussion followed and it was decided to invite and collect relevant information re. other services as well, *viz.,* Jail Medical Officers, District Board Medical Officers, etc.

(3) *Import of Hearing Aid instruments and other medical or surgical appliances or instruments.*

It was decided that reminders be again sent to the three Port City branches to supply comprehensive lists. The Hony. General Secretary in the meanwhile, could obtain advice from members in Delhi and the Delhi Branch in preparing a list after consulting the list on O. G. L.

(4) *Scales of fees for medical examination of Life Insurance cases.*

The matter was still under consideration of the Bombay branch in consultation with the Insurance Companies' Association.

(5) *Re. letter of the All-India Medical Licentiates' Association No. 132 of 18th January, 1951, and Dr. U. B. Narayan Rao's letter of 8th January, 1951.*

Both these letters were read out by the Hony. General Secretary. Considerable discussion followed and at the end, it was decided that the letters be recorded.

(6) *Re. Insurance Scheme:* Dr. Chamanlal M. Mehta informed the house what negotiations he had had so far with the Insurance Companies' Association and that the Scheme was still under consideration.

Certain suggestions were made by members, which Dr. Mehta noted.

The matter was postponed pending further communication from Dr. Mehta and Dr. U. Krishna Rau who were requested to pursue it further.

(7) *Mutual Affiliation of I.M.A. with B.M.A.*

The Hony. General Secretary informed the house that the matter was receiving the attention of the British Medical Association——and he read out the relevant letters received at the Central office and replies he had given.

Further communication awaited from the British Medical Association.

(8) *Re. Acquiring of a plot of land for I.M.A. Central Office:*

The Hony. General Secretary informed the house about the position and that he was actively pursuing the matter.

(9) *Re. Disposal of Rs. 8,000/- from the Benevolent Fund as sanctioned by the Working Committee at its Sholapur Meeting.*

The Hony. General Secretary informed the House that a Circular (No. 20/50-51) to this effect had been issued to the Provincial Branches and within the previous few days, a few applications had been received which were mostly lacking in details of the cases. It was decided that the applications be referred back to the Provincial Secretaries for favour of going into the merits of each case and make definite recommendations for cases which are in dire distress, keeping in view that the total amount available was only Rs. 8,000/-. The date for receiving applications be further extended and a pro forma form of application be supplied to each Provincial Branch.

(10) *Re. Dispute between Jharia Coalfield Branch and Dhanbad Branch.*

Noted: The Jharia Branch had already been dissolved.

(11) *Position of Purulia Branch:*

Noted: The Branch had already been dissolved.

(12) *Re. Orissa State Branch letter re. suggestion for abolishing compartmentation of medical services into senior and junior grades of Assistant Surgeons.*

Postponed for consideration with Item No. 4(2) pending further information to be collected.

(13) *Re. Medical Education and Health Services Sub-Committee.*

The Sub-Committee had not so far met.

(14) *Resolutions of Travancore-Cochin Provincial Branch, protesting against the training of Village Vaidyas.*

(16) *Consideration of Resolutions passed by the Health Ministers' Conference.*

Dr. U. Krishna Rau read out a resolution passed at the Andhra Provincial Medical Conference held at Rajamundry. He also told the House that the Hon'ble Dr. T. S. S. Rajan, the Minister of Health, Madras State, had informed him that the scheme had been formulated by his predecessor and he was merely instrumental in giving effect to the previously accepted policy of his Government. Dr. Krishna Rau also read out relevant Madras Government Orders and other papers and related about the interview he had with the Minister of Health of Madras.

Considerable discussion followed and the following resolution was passed:—

"The Working Committee of the Indian Medical Association disapproves the decision taken by the last Health Ministers' Conference in the matter of utilizing unqualified persons practising in Ayurvedic, Unani, Homœopathy and Modern medicine as doctors in the rural medical service after giving them a short period of training in medicine, as, such a step is likely to raise false hopes in the minds of the people for the quality of medical service and is likely to do more harm than good to the rural population.

The Working Committee reiterates its views previously expressed that these unqualified persons practising medicine in any form be listed, be given suitable training for at least a year and utilized as *auxilliary medical health personnel* and not allowed to practise medicine.

Resolved further that a suitable curriculum for such training be drawn up by the Working Committee and recommended to the Central and State Governments."

(15) *Re. letter from the Jalgaon Branch, suggesting formation of a separate compact Maharashtra Provincial Branch.*

It was noted that the proposal had been withdrawn by the said branch in view of the opinion of the Working Committee (at its meeting held at Sholapur on 24th and 25th December, 1950).

(17) *Re. Medical certificates and Ordnance Factories.*

The information given by the Hony. General Secretary was noted.

(18) *Re. the Sub-Committee appointed for revising and re-drafting the rules of the Indian Medical Association.*

It was noted that the Hony. General Secretary was preparing the preliminary draft.

(19) *Re. the Joint Meeting of the British Medical Association and the Medical Association of South Africa and the Commonwealth Medical Conference at Johannesburg.*

The Hony. General Secretary informed the house that he had heard from the British Medical Association and that the Joint Meeting and the Commonwealth Medical Conference Session to be held at Johannesburg had been cancelled.

(20) *Re. Acute shortage of Penicillin etc.*

The action so far taken by the Central office was noted.

(21) *Re. Scheme for the publication of a lay Health Journal.*

The Editor of the Journal, Dr. A. D. Mukharji, reported that the Journal Committee had gone further into the matter and was of the opinion that the time is not yet opportune and it would be better to postpone the matter for a period of six months or so and review the situation before decision was taken re. the launching of the lay Health Journal.

The House agreed.

(22) *Re. a grant of Rs. 100/- requested for by the*

(a) *Dibrugarh Branch for propaganda work.*

The Hony. General Secretary reported that a financial statement had been received from the branch.

It was decided to sanction Rs. 100/- as a grant for propaganda purposes from the Central Fund to the Dibrugarh

Branch. The branch in due course is to submit a statement as to how the money was spent.

(b) *Re. a request for Rs. 500/- from the Orissa State Branch for a membership drive.*

The Hony. General Secretary informed the house about the financial statement received from this Provincial Branch.

It was decided to sanction a grant of Rs. 200/- to the Orissa State Branch for the purpose with a request that a statement be submitted in due course re. the spending of this sum.

(23) *Re. Delegates from the Indian Medical Association to the Pakistan Medical Conference.*

The Hony. General Secretary reported that none of the nominated delegates could attend the said Conference since its dates were changed and clashed with the present meeting of the Working Committee.

5. *Formation of New Local Branches.*

The formation of the following new local branches was approved:

	Name of the Local Branch	*Provincial Branch*	*No. of members*	*Date of formation*
1.	Mainpuri ..	U. P.	6	1-10-50
2.	Balangir ..	Orissa	11	1-10-50
3.	Bhowali ..	U. P.	11	1-10-50
4.	Jagdishpur ..	Bihar	6	1-10-50
5.	Karim Nagar ..	Hyderabad-Dn	11	1-10-50
6.	Adilabad ..	Hyderabad-Dn	5	1-10-50
7.	Balurghat ..	Bengal	20	1-10-50
8.	Dhandhuka ..	Gujarat & Saurashtra	6	1- 4-51

6. *Formation of Provincial Branch in the Mysore State.*

The Working Committee noted with pleasure the decision of the Mysore Medical Association to join the Indian Medical Association and form itself into the Mysore Provincial Branch of the Indian Medical Association.

The formation of the Mysore Provincial Branch was approved with effect from 1st April, 1951.

7. *Adoption of Audited Accounts:*

(*i*) Central Office: From October '50 to December '50.

(*ii*) Journal Department: From October '50 to December '50.

The following audited accounts were duly adopted.

(*i*) Of the Central Office for the quarter ending 31st December, 1950.

(*ii*) Of the Journal Department for the quarter ending 31st December, 1950.

8. *Consideration of C.F.C. arreas, if any.*

(1) *Jaipur Branch:* The request for writing off of certain C.F.C. arrears was considered. It was decided to request the Rajasthan Provincial Branch to make further efforts for realisation of these arrears as it was the responsibility of the Provincial Branch that all payments be propmtly made and if necessary to pay the C.F.C. from the Provincial Branches' funds.

(2) *Ganganagar Branch:* Dr. D. G. Ojha agreed to look into the matter of C.F.C. arrears of this branch and he was requested to make special efforts to rejuvinate this branch and realise as much of the arrears as possible.

(3) *S. Indian Provincial Branch:* It was decided that Drs. Krishna Rau and P. A. S. Raghavan be requested to attempt once again for the realisation of the C.F.C. arrears of this Provincial Branch.

The Hony. General Secretary then read out a statement of dues from the various Provincial Branches.

16. *Consideration of Letter No. F-9-35/50-MI dated 31st January, 1951 of the Government of India, Ministry of Health, regarding Lake Medical College, Calcutta.*

By the permission of the Chair, this item was taken up at this stage.

The Hony. General Secretary read out a letter No. F-9-35/50-MI dated 31st January, 1951 from the Ministry of Health, Government of India, re. the decision to close the College and Hospital.

Dr. A. C. Ukil dealt with the matter and the present position in detail. He spoke about a new alternative scheme.

Discussion followed in which the following took part: Drs. S. N. Kaul, Chamanlal M. Mehta, H. N. Shivapuri, T. N. Banerjee, A. D. Mukharjee, R. Sinha, A. P. Mittra, J. Mojumdar, M. K. Roy Chowdhury.

It was decided that Dr. Ukil should pursue the matter of the "New Scheme" further and in the meanwhile a deputation consisting of the following members wait on the Hon'ble the Health Minister, Government of India, if possible on the following day: 1. Dr. T. N. Banerjee (the *President*), 2. Dr. S. C. Sen (The *Hony. General Secretary*). 3. Dr. Chamanlal M. Mehta (Bombay), 4. Dr. A. C. Ukil (Calcutta), 5. Dr. M. K. Roy Chowdhury (Calcutta).

9. *Consideration of Letter dated 3rd February, 1951, from Colonel Amirchand regarding standard of Medical Education in India.*

The Hony. General Secretary read out a letter from Lt.-Col. Amirchand containing suggestions for a resolution on the subject.

Discussion followed in which the following took part: Drs. S. C. Sen, H. N. Shivapuri, A. C. Ukil, U. Krishna Rau, P. N. Sinha, C. S. Thakkar, A. P. Mittra, Chamanlal M. Mehta, S. N. Kaul, B. V. Mulay, C. O. Karunakaran and Lt.-Col. Amirchand.

The following resolution was duly passed:—

"In the interest of maintaining an adequate standard of medical education in India, the Working Committee of the Indian Medical Association draws the attention of the Medical Council of India to the necessity, while constituting committees for inspection of colleges and University examinations, of ensuring that a majority of the members of such committees should be teachers of at least 10 years' standing."

10. *Consideration of Letter of Col. Amirchand dated 13-12-50 and 18-12-50 and of Hony. Secretary, Delhi Medical Association regarding direct membership of Doctors residing in New Delhi, of Delhi Medical Association as a Provincial Branch.*

The Hony. General Secretary read out the relevant correspondence which had been forwarded by the Delhi Medical Association for opinion and clarification.

Discussion followed in which the following took part: Drs. Chamanlal Mehta, H. N. Shivapuri, B. V. Mulay, Lt.-Col. Amirchand, A. K. Sen, S. C. Sen, Hanumanth Rao, R. Sinha, P. K. Chatterjee, Sada Nand Saxena, C. S. Thakkar, Madan Gopal, S. Samaddar, M. K. Roy Chowdhury.

In view of the dual position of the Delhi Medical Association as a local branch and its specially granted status of a Provincial Branch, the President decided to take votes on the principle whether direct Provincial membership should be admitted or not.

The result of the voting was as follows:

In favour of admitting direct membership to this Branch—8.

Against it—18.

11. *Consideration of system of Honorary Medical Officers.*

It was postponed.

12. *Consideration of letter No. 188/50-51 dated 18-1-51 of the Hony. Secretary, Punjab State Branch for getting the period of two years' condensed M.B. course for Licentiates reduced to one year only.*

Lively discussion followed and it was decided that this proposal could not be agreed to.

13. *Consideration of letter of the Vice-President, Uttar Pradesh State Branch re. recent drastic cut in basic ration by the Government of India.*

The letter was read out by the Hony. General Secretary.

The House decided that no action was required in the matter and the letter be recorded.

14. *Reprint in the Journal of the Indian Medical Association "The National Government and the National Medical Association," and the letter No. MMD/466/50-51 dated 20th February, 1951, received from the Government of Assam in reply on the subject.*

The House expressed satisfaction when the Honorary General Secretary read the letter from the Government of Assam. It was recorded.

15. *Consideration of the letter No. 9324/A/V-489/50 dated 22nd February, 1951, received from the Government of U.P. regarding orders of the Governor on the resolutions passed by the 26th All-India Medical Conference held at Allahabad in December, 1949.*

The letter was recorded.

16. *Consideration of letter No. F.-9-35/50-MI dated 31st January, 1951, of the Government of India, Ministry of Health, regarding Lake Medical College, Calcutta.*

Already considered and recorded above.

17. *Letter from the British Medical Association dated 19/2/51 regarding delegates to attend the Conference in Johanesburg, South Africa.*

The letter was recorded.

18. *Consideration of various letters from the World Medical Association.*

(1) Re. Opinion of the Indian Medical Association about accepting the West German Medical Association.

After considering the matter, the House unanimously decided to recommend that the West German Medical Association be accepted as a member of the World Medical Association.

(2) Re. application for membership by the Japanese Medical Association of the World Medical Association.

The house unanimously decided to recommend that the Japanese Medical Association be accepted as a member of the World Medical Association.

(3) Re. Customs duty to be paid on the import of four cases containing free copies of the International Code of Medical Ethics sent to this Association for its members.

The Hony. General Secretary was authorised to pay the necessary customs charges.

Regarding other matters of the World Medical Association, the action of the Hony. General Secretary was approved.

19. *Consideration of letters from the Canadian Medical Association.*

23. *List of Doctors selected for residencies in:*

(1) Mount Sinai Hospital, New York, U.S.A.
(2) Royal Victoria Hospital, Montreal, Canada.
(3) Bronx Hospital, New York, U.S.A.
(4) Nassau Hospital, Mineola, New York, U.S.A.

These items were taken up together.

The Hony. General Secretary read out a letter recently received from the Canadian Medical Association re. offers of Resident Posts for training of young medical men to be selected by the Indian Medical Association.

The House appreciated and thanked the Canadian Medical Association for this generous offer.

The Hony. General Secretary gave details of the selection of candidates for the Mount Sinai Hospital Resident appointments carried out by the Selection Committee appointed by the Working Committee at its previous meeting at Sholapur.

The following resolution was then duly passed:—

"Resolved that the Working Committee places on record its appreciation of the work of the Selection Committee and the Hony. General Secretary in connection with the post-graduate training of young Indian Medical Graduates in various foreign Universities and hospitals."

20. (A) *To open I.M.A. Building Fund Account with the* Imperial Bank of India, Delhi.

(B) *To open Reserve Fund Account with the Imperial* Bank of India, Delhi.

The following resolution was passed in connection with the above:

"Resolved that the Central office be authorized to open various accounts in the name of the Indian Medical Association with the Imperial Bank of India, Chandni Chowk, Delhi. These accounts as and when opened, would be operated jointly by any two of (1) Dr. S. C. Sen, Hony. General Secretary and (2) Dr. A. P. Mittra, Hony. Joint Secretary with Dr. H. R. Dawar, the Hony. Treasurer."

21. *Selection of.*

(1) Delegates.
(2) Alternate Delegates.
(3) Observers.

for the Fifth General Assembly of the World Medical Association to be held from 15th to 20th September '51 in Stockholm, Sweden.

The House nominated:

1. Dr. S. C. Sen, the Hony. General Secretary, as a Delegate who is to be the Leader of the Delegation.

2. Dr. D. N. Sanyal of Kanpur as a Delegate.

The House authorised the President and the Hony. General Secretary to select (in consultation) the other delegates and observers.

22. *Consideration of letter No. 645/50-51 dated 1st March, 1951, from Dr. R. Sinha, Hony. Joint Secretary, I.M.A. Calcutta, regarding:*

1. Free supply of extra office copy for branch-secretaries.

2. Supply of back copies of the journal to members enrolled at any time during the year (unless previously arranged as by U.P. State Branch.

Dr. Sinha's suggestion were accepted and the following resolution was duly passed:—

Resolved:

(*i*) That due to increased cost of printing and paper, supply of Journal to Secretaries of local branches of the Indian Medical Association be stopped for March '51 issue of the Journal.

(*ii*) Back copies of he Journal need not be supplied to members enrolled at any time during the Association year.

24. *Information re. dates of the next meeting of the*

A. *Working Committee to be held on 7th & 8th July, 1951 at Hyderabad.*

B. *To consider the venue of the next All-India Medical Conference to be held in December, 1951.*

A. The Hony. General Secretary read out Capt. Shivapuri's letter re. holding Working Committee meetings at distant places and subsequent correspondence with him.

Lively discussion followed in which the following members took part.

Dr. S. C. Sen, Dr. A. P. Mittra, Dr. A. D. Mukharji, Dr. S. N. Saxena, Dr. Chamanlal M. Mehta.

It was decided to record the letter.

The House accepted the following fixtures for the Working Committee meetings as fixed by the President.

At Hyderabad: 7th & 8th July, 1951.

At Shillong (Assam)—14th & 15th October, 1951.

B. It was decided that the venue of the next Conference should be at Delhi unless invitation was received from the South Indian Provincial Branch by the end of April to hold it, somewhere in the South.

Drs. U. Krishna Rau, P. A. S. Raghavan and P. B. Annangarachariar promised to get the matter considered by the S. Indian Provincial Council in the near future.

SUPPLEMENTARY AGENDA

1. *Consideration of letter No. 693-53/50-51 dated 22-1-1951 from Captain H. N. Shivapuri, Hony. Secretary, U.P. State Branch regarding suggestion of the S. Indian Provincial Branch to the Government of Madras to have a Board of examiners for purpose of giving diplomas to medical men in place of University Degrees and the explanatory replies received to it from the President and Secretary of the S. Indian Provincial Branch, and letter No. 918/53/50-51 dated 2-3-1951 of Capt. Shivapuri in reply.*

The relevant correspondence was placed before the House by the Hony. General Secretary.

Lively discussion followed in which the following members participated:—

Drs. P. A. S. Raghavan, U. Krishna Rau, Chamanlal M. Mehta, A. C. Ukil, M. K. Roy Chowdhury, S. C. Sen, B. V. Mulay, R. Sinha and Capt. H. N. Shivapuri.

The resolution passed by the S. Indian Provincial Council on 6th July, 1949 at Madras ran as follows:

"The Working Committee resolves to request the Government that in order to meet the needs of the Province, more Medical colleges be started immediately in various parts of the province. The Working Committee suggests to the Government that large sums of money need not be spent on buildings and the existing buildings which lodged the Medical Schools in Madura, Tanjore and Calicut and Guntur be utilised for the purpose of new colleges. If there is any difficulty in the Universities giving recognition of these colleges for want of adequate building as per their requirements, the Working Committee suggests to the Government that a Board of Examiners be appointed by the Govt. who might issue Diplomas to the products of these colleges. For purpose of practice and appointment, these diplomas holders should have the same facilities as the University Graduates."

The President then summed up the views expressed and the following resolution was moved from the chair and was unanimously passed.

"The Working Committee after full discussion disapproved of the recommendations embodied in the resolution as it ran contrary to the accepted policy of the Indian Medical Association."

"The Working Committee further resolved that it was not right for the S. Indian Provincial Branch to take decision or action on a subject which concerned the whole country, but should have referred their opinion to the Working Committee for its consideration and decision."

2. *Selection of candidates for the Post of Clinical Assistant at the Grangegorman Mental Hospital, Dublin, Ireland.*

The selection Committee was to meet after the conclusion of the meeting.

25. *Any other Business with the permission of the President.*

A. Re. Dr. C. O. Karunakaran's resolution.

The President informed the House that necessary steps were already being taken by the authorities concerned.

The following resolution was moved by Dr. C. O. Karunakaran:—

"Resolved that the Central Government be requested to so amend the Indian Medical Council Act of 1933 as to give due representation to the Medical Faculties of the Universities and the Medical graduates of Part B States."

Dr. A. C. Ukil seconded the resolution. The resolution was passed unanimously.

B. The following resolutions were duly moved and passed.

(1) The Working Committee places on record its deep appreciation and conveys its thanks to the Delhi Medical Association, for honouring its members by according them a reception and for placing the D.M.A. hall at its disposal for the meeting.

(2) The Working Committee of the I.M.A. takes this opportunitiy to thank the Hon'ble Rajkumari Amrit Kaur, the Minister of Health, for graciously inviting the members to a Reception at the Government House.

The Meeting then came to a close with a vote of thanks to the Chair.

T. N. Banerjee, *President.* S. C. Sen. *Hon. General Secretary.*

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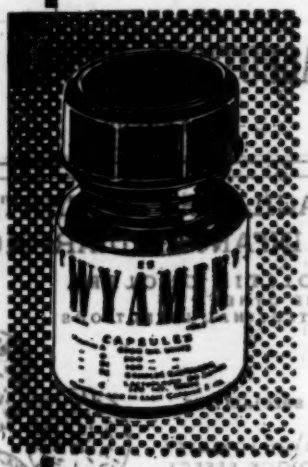

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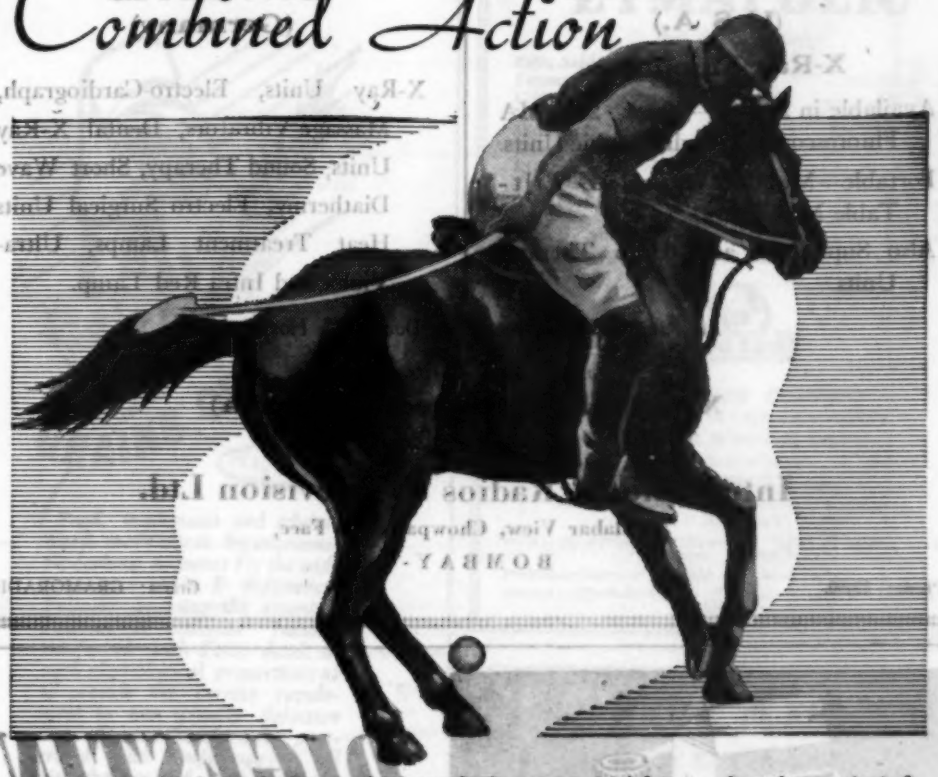

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(1) Preliminary statement by the Medical Research Council, Lancet, 1949, ii, 1237. (2) MOESCHLIN, S. & DEMIRAL, B. Schweiz. Med. Wschr. 1950, 80, 979

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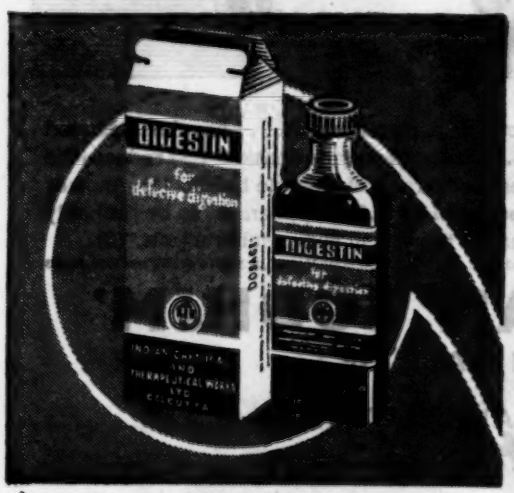

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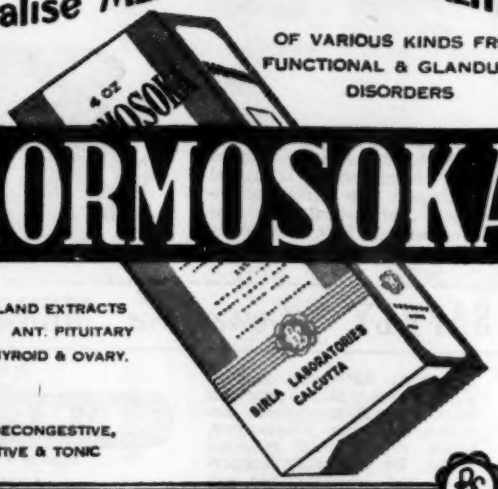

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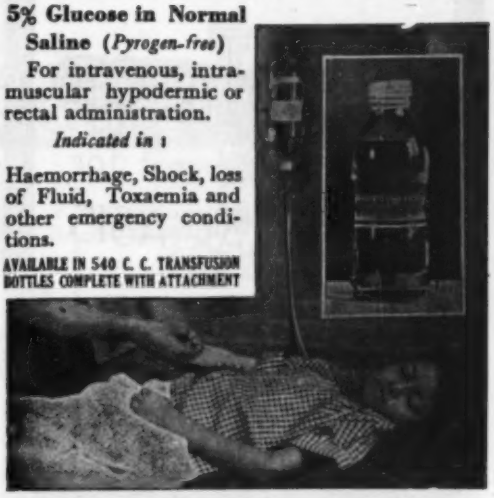

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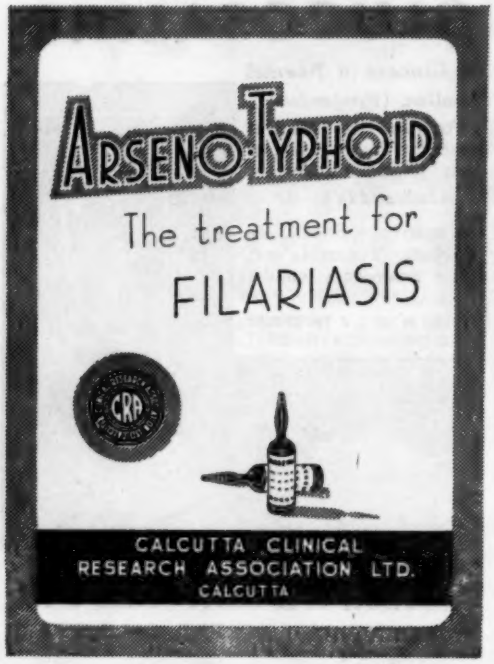

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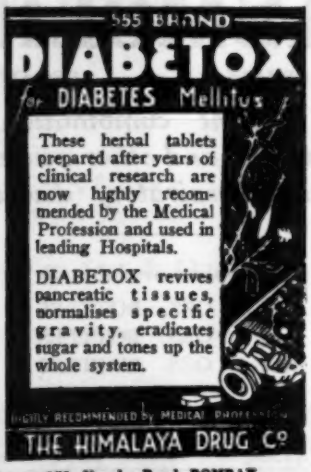
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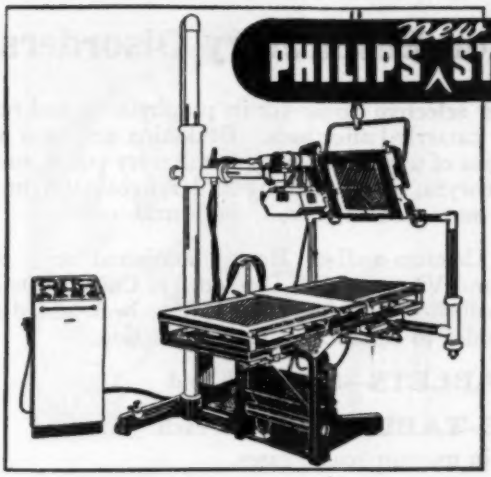

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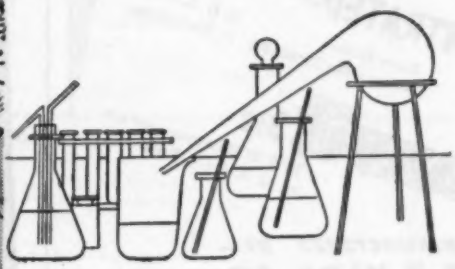

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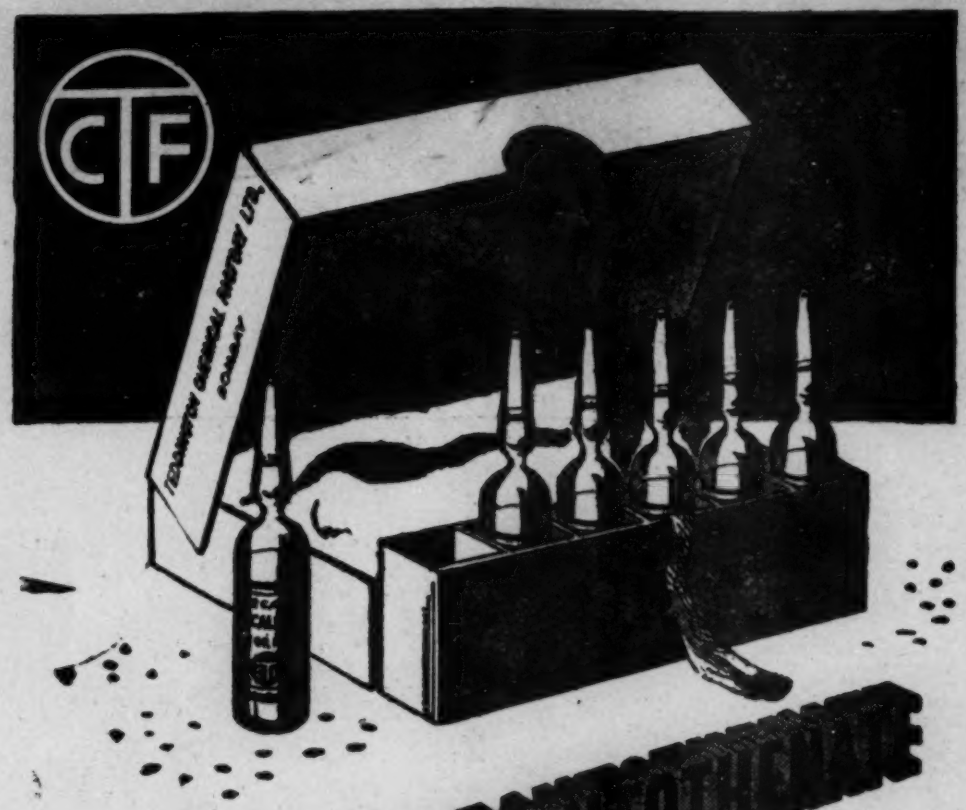

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